DIGITAL 8•BUS

QUICK START GUIDE

MACKIE'S 56-INPUT, 72-CHANNEL, FULLY AUTOMATED DIGITAL AUDIO MIXING CONSOLE

MACKIE®
Digital Systems

TABLE OF CONTENTS

1. Introduction 3
- About the Quick Start Guide 3
- Unpacking 3

2. The Basics 5
- The Traditional Split-Console Approach 5
  - Three Things to Keep in Mind 5
  - Tracking 5
  - Monitoring 6
  - Overdubbing / Bouncing Tracks 6
  - Mixdown 7
- Signal-flow Diagram 7

3. Tutorial Hookup — Let's Get It Working! 8
- Hookup Stuff 8
- Power-Up 9
- Start-up 10
  - System Options 10
  - Downloading Plug-Ins 10
- Getting Sound Out 11
- Preparing to Record 11
- Saving Your Session 14
- Creating a Default Snapshot 14

4. General Guidelines 15
- Three Things to Keep in Mind (Reprise) 15
- Setting Levels 15
  - Input Sensitivity Adjustment Procedure for Channels 1-24 15
- Using Internal Channel Processing and Internal Effects 16
  - EQ 16
  - Gate 17
  - Compressor 17
  - Internal Effects 17
    - Plug-Ins 17
      - MFX 17
      - IVL Vocal Studio 19
    - IVL Vocal Studio: Harmony Example 19
- Using External Effects 23
- Soloing 24

5. Hookup for Multitrack Recording 26
- Hookup for Tracking 27
  - Monitoring 27
- Hookup for Mixdown 29

6. Hookup for Live Mixing (D8•SR) 30
- Setting up Monitor Mixes 31

7. Digital 8•Bus Overview 32
- Channel Strip Description 32
- Master Section Description 32
- Rear Panel Description 36
- Remote CPU Description 38
  - Connecting a Mouse, Keyboard, and SVGA Monitor 38
  - Other Connections 38
  - Automation 39
- Remote CPU Rear Panel View 40
- Top Panel View 41
- Rear Panel View 42

MACKIE®
Digital Systems

Mackie Designs Inc.
16220 Wood-Red Rd. NE • Woodinville, WA 98072 • USA
800/898-3211 • Outside the US: 425/487-4333
Fax: 425/487-4337 • www.mackie.com
email: sales@mackie.com

©1998 Mackie Designs Inc. All rights reserved. #820-075-00

1. Introduction

Now you've done it! You've just invested in the newest generation of affordable digital mixing consoles by Mackie Designs. Whether or not you've used digital mixing consoles before, you will be pleased by the analog feel of our Digital 8•Bus, and by how easy it is to use. Greg Mackie has been designing and building analog mixers for years (since the TAPCO days of the early '70s), and one of the prime directives for our first digital mixing console was to make it as easy to use as an analog mixer.

The Digital 8•Bus combines the best of both worlds, providing an intuitive control surface for mixing the old-fashioned way — with faders and knobs — and providing connections for a mouse, keyboard, and video monitor for performing computer-oriented functions such as file maintenance and editing. Of course, you can perform virtually all the same mixing functions on the video monitor as you can on the control surface, so you have the flexibility to choose what works best for you.

About The Quick Start Guide

This Quick Start Guide is designed to help you get going right away. Use it, along with the Quick Start Video, to learn the basics of setting up and using the Digital 8•Bus. But eventually you will have to crack open the Digital 8•Bus Owner's Manual to gain a more in-depth understanding of what the Digital 8•Bus can do for you.

Unpacking

Obviously, you've already opened the box if you're reading this manual. Here are some helpful hints on unpacking:

- The Digital 8•Bus comes in two parts, each packed in a separate box: The Console and the Remote CPU.

The Console

- If you haven't removed the Digital 8•Bus from the packing box yet, remove the accessory tray containing the manuals, video, and miscellaneous literature.
- Remove the foam blocks from the ends of the console. Just lift up on them and they'll come right out. The Digital 8•Bus weighs 65 pounds, so we recommend enlisting the help of another person to assist in lifting it out of the box. Position one person on each end of the box and, on the count of three, lift the console (remember: back straight, lift with your legs!).
- Place the console on a flat surface, like the floor next to the packing box, or a table top large enough for the Digital 8•Bus to sit on.
- Remove the plastic bag from around the console.
- Please save the box, the outer sleeve, and all the foam innards. If you need to ship your Digital 8•Bus anywhere, using the original carton is the best way to do it.

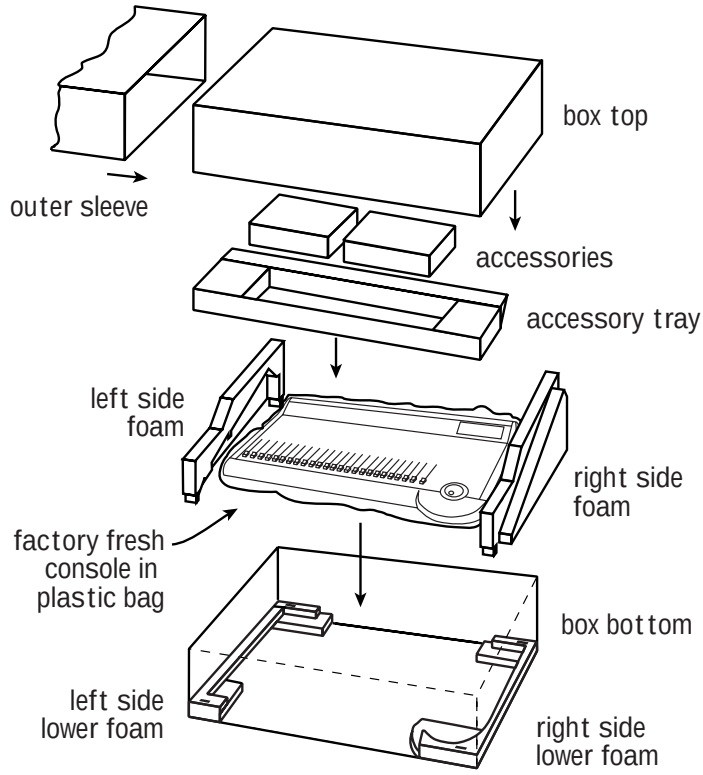


Figure 1. Unpacking the Console

Part No. 820-075-00 Rev. A 8/98
©1998 Mackie Designs Inc., All Rights Reserved. Printed in the U.S.A.

The Remote CPU

- Use a sharp knife to cut the tape on the top of the box.
- Open the flaps to expose the Remote CPU inside.
- Lift the Remote CPU up and out of the packing box. The foam blocks will come with it, and the bottom tray will lift up also. The DC Power Cable is coiled up underneath the bottom tray.
- Set the Remote CPU on a flat surface, like the floor next to the packing box, or a table top.
- Remove the DC Power Cable from the bottom tray.
- Remove the foam blocks from the sides of the Remote CPU.
- Remove the plastic bag from around the Remote CPU, and the plastic bag from around the DC Power Cable.

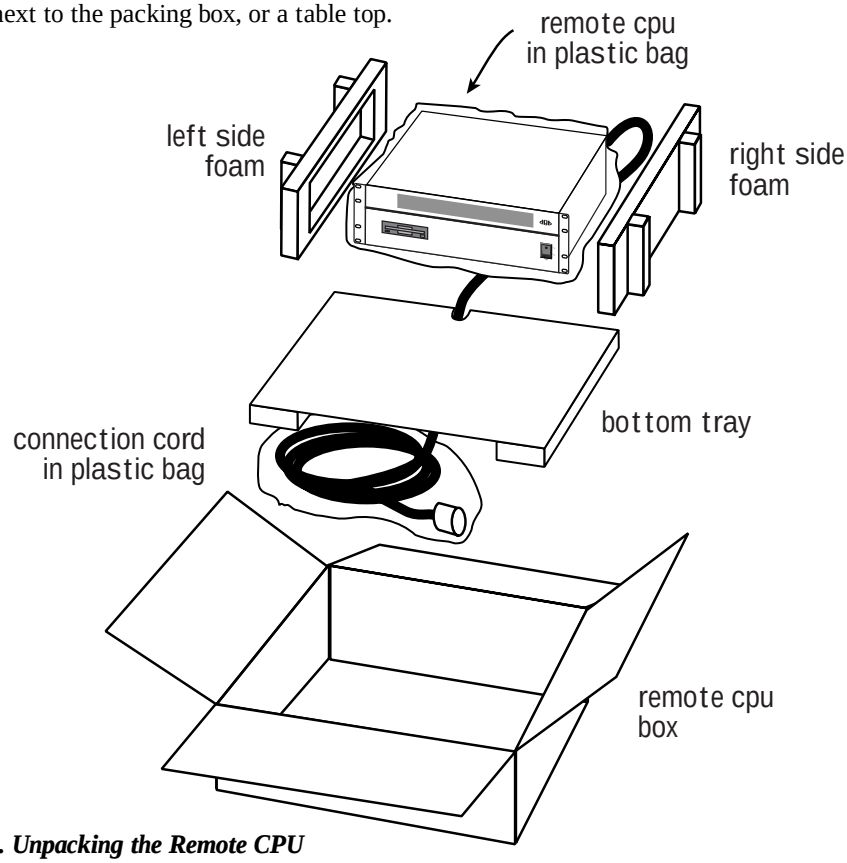


Figure 2. Unpacking the Remote CPU

Take a moment now to fill out the *Product Registration Card* located in the back of the Digital 8•Bus Owner's Manual. Mailing it in will automatically put you on our mailing list so you can get updated information, so do it today.

Also, write the serial numbers of your Digital 8•Bus console and Remote CPU here so you'll always have them.

Console	Remote CPU

Purchased at:

Date Purchased:

2. The Basics

The Traditional Split-Console Approach

Before we go any farther, we want to present a concept that might help you understand the Digital 8•Bus a little better. Once you grasp this concept, you will begin to understand the real beauty and power hidden beneath the surface of this console.

The Digital 8•Bus has four layers of faders, or fader banks, which can be individually accessed using the select buttons in the Master Fader/Bank Select Section. All four banks operate simultaneously, but only one bank is accessible at a time.

Fader Bank 1 = Channels 1–24
(1–24 MIC/LINE button)
Fader Bank 2 = Channels 25–48
(25–48 TAPE button)
Fader Bank 3 = Internal Effects Returns FX 1–16, ALT RETurns 1–8
(49–72 EFFECTS button)
Fader Bank 4 = Virtual Groups 1–8, MIDI Controllers 1–8, Bus 1–8 Masters
(MASTERS button)

This architecture provides a total of 56 inputs, with Fader Banks 1 and 2 providing 48 inputs, and the 8 ALT Returns in Fader Bank 3 providing another 8 inputs.

One of the primary applications that the Digital 8•Bus was designed for is multitrack recording (up to 24 tracks). This involves tracking and monitoring, bouncing, overdubbing, and mixdown. You can think of Fader Bank 1 and Fader Bank 2 as two separate mixing consoles, where Fader Bank 1 is used for tracking and Fader Bank 2 is used for monitoring and mixdown.

Three Things to Keep in Mind

As you become familiar with the Digital 8•Bus, you'll find it helpful to keep these three questions in mind at all times:

1. *What Fader Bank is selected?*
2. *What channel is selected?*
3. *What is the V-Pot assignment?*

In 90% of the cases, if something isn't working as you expect, it is because one of these three settings isn't where you intend it to be.

Tracking

The first 24 channels (Fader Bank 1) are used for tracking; that is, to record instruments and voices onto individual tracks of the multitrack recorders (refer to Figure 4 on the next page). Microphones and instruments are directly connected to the input jacks on channels 1–24, and their signals are assigned to Tape Outputs 1–24 (*and not to the L-R bus*). The Tape Outputs on the Digital 8•Bus are connected to the inputs of the multitrack recorders where the instruments and voices are recorded on tape (or hard disk in the case of a Hard Disk Recorder or DAW).

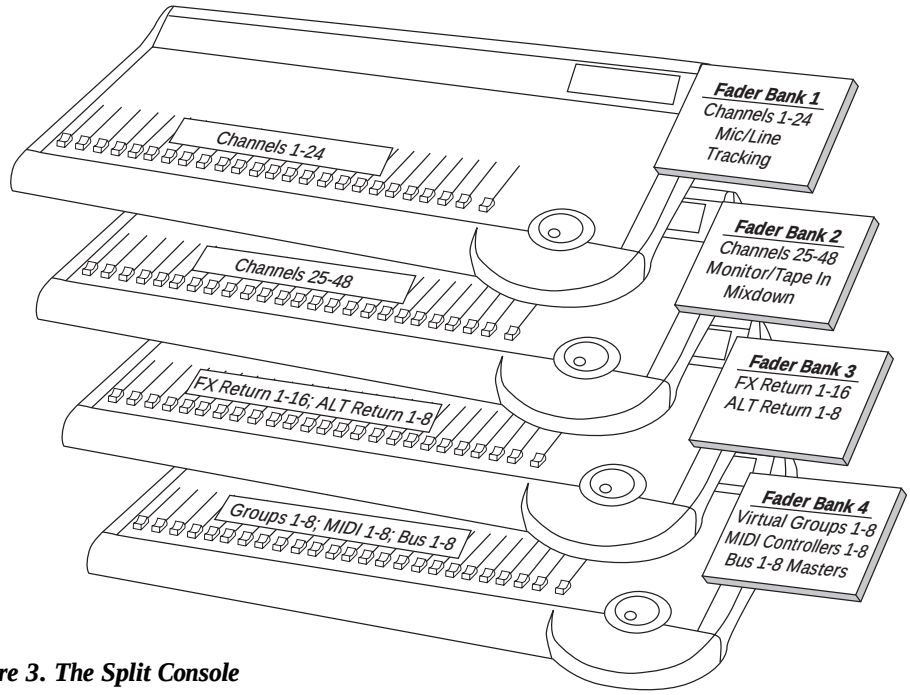


Figure 3. The Split Console

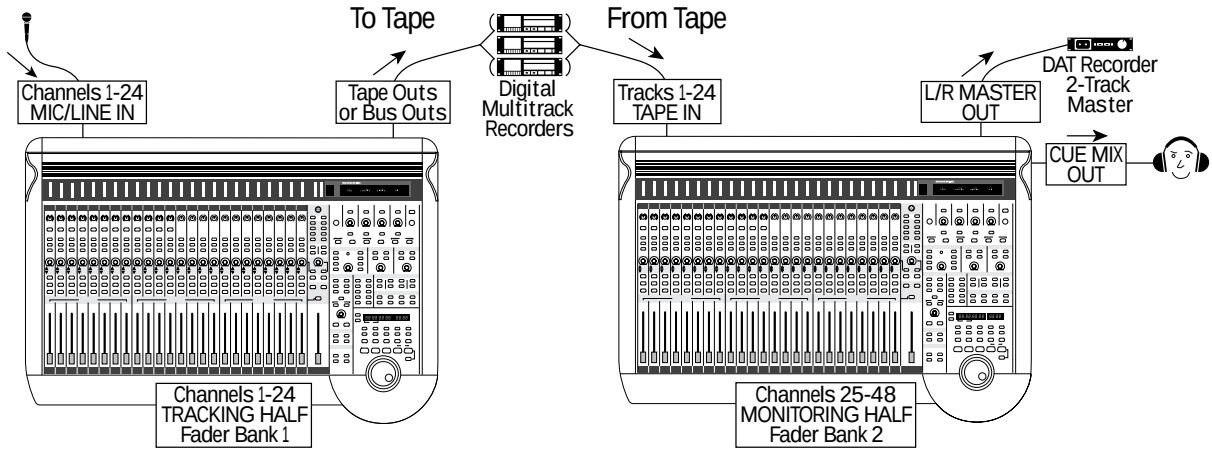


Figure 4. The Split Console — Tracking

Monitoring

But wait! Of course you want to be able to monitor the signal as you're recording it. And your preference is to monitor the signal actually recorded onto the tape rather than the signal going from the console to the tape machines, so you can hear if there is any distortion or unusual noise going down. Even if you're using all 24 channels for tracking, you've only used half the channels available. There are another 24 channels available for Tape Inputs (Fader Bank 2). This is the *split-console concept*.

You can connect all 24 tracks from the multitrack recorders to the Digital 8•Bus, and monitor them on channels 25–48, which are assigned to the L-R bus. The tracking half is not assigned to the L-R bus, so you can use the monitoring half to hear the tape outputs on the L-R bus.

What's more, all 48 channels have full DSP capability, so you can apply EQ and effects to the post-tape signal. And thanks to snapshot automation, you can even create a rough mix and store it for future use.

Overdubbing/Bouncing Tracks

The setup is the same throughout the mixing process. No need to crawl around behind your gear and move cables around. The Digital 8•Bus has its own built-in patch bay to reassign the inputs to various output destinations.

A corollary of Murphy's Law states that no matter how many tracks you have available to record, you will always need at least one more. If you need to bounce some tracks down to make room for the background vocal parts, simply assign the tracks you want to bounce

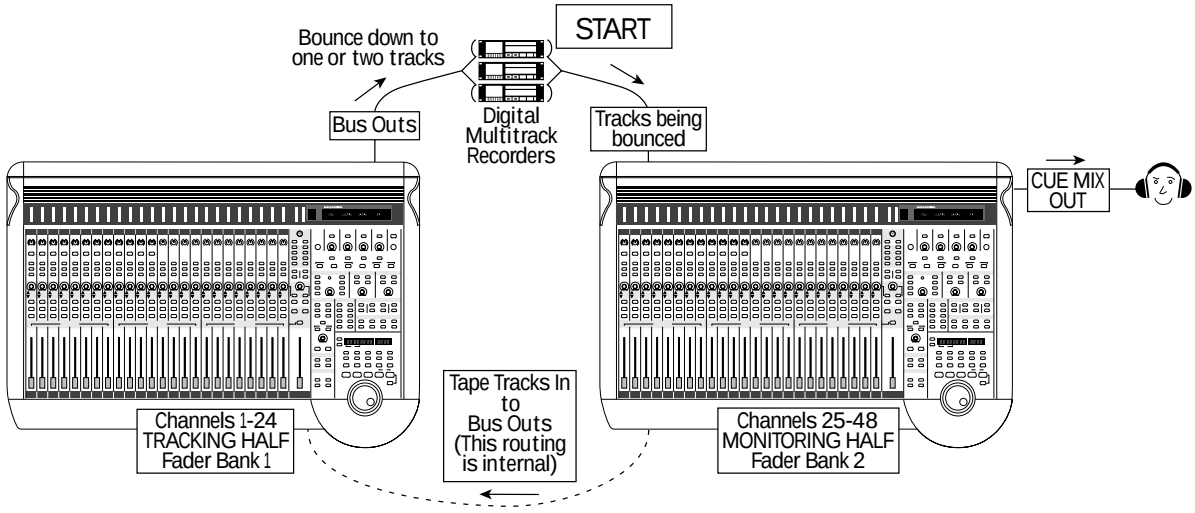


Figure 5. The Split Console — Bouncing Down

down to one of the Bus 1–8 Masters (Fader Bank 4), and assign the Bus Master to any one (for a mono mix) or two (for a stereo mix) of the 24 Tape Outputs.

As you bounce the tracks down, you'll monitor the previously recorded tracks through the monitoring half of the console.

Of course, overdubbing is simply recording while monitoring both the live source and pre-recorded tracks.

Mixdown

Mixing down is an art unto itself, but the Digital 8•Bus gives you the tools to make the job easier so you can concentrate more on the art and less on the mechanics. Since the Digital 8•Bus is fully automated, you can go through a step-by-step process of adjusting levels, pans, EQ, and effects. The console remembers every move you make and plays them back each time you make a pass, while you add your creative touch to each and every track. When you're done, hit PLAY, sit back and watch the console perform the complex tasks you've programmed it to do, resulting in a perfect mix to two-track (or multitrack for surround-sound applications).

Signal-Flow Diagram

There is a detailed block diagram in the Digital 8•Bus Owner's Manual that shows all the signal flow and computer-controlled logic within the console. But since this is a Quick Start Guide, we thought it might be helpful to have a simpler signal-flow diagram here that shows the basic signal flow at a glance so you don't have to plod through the detailed drawing.

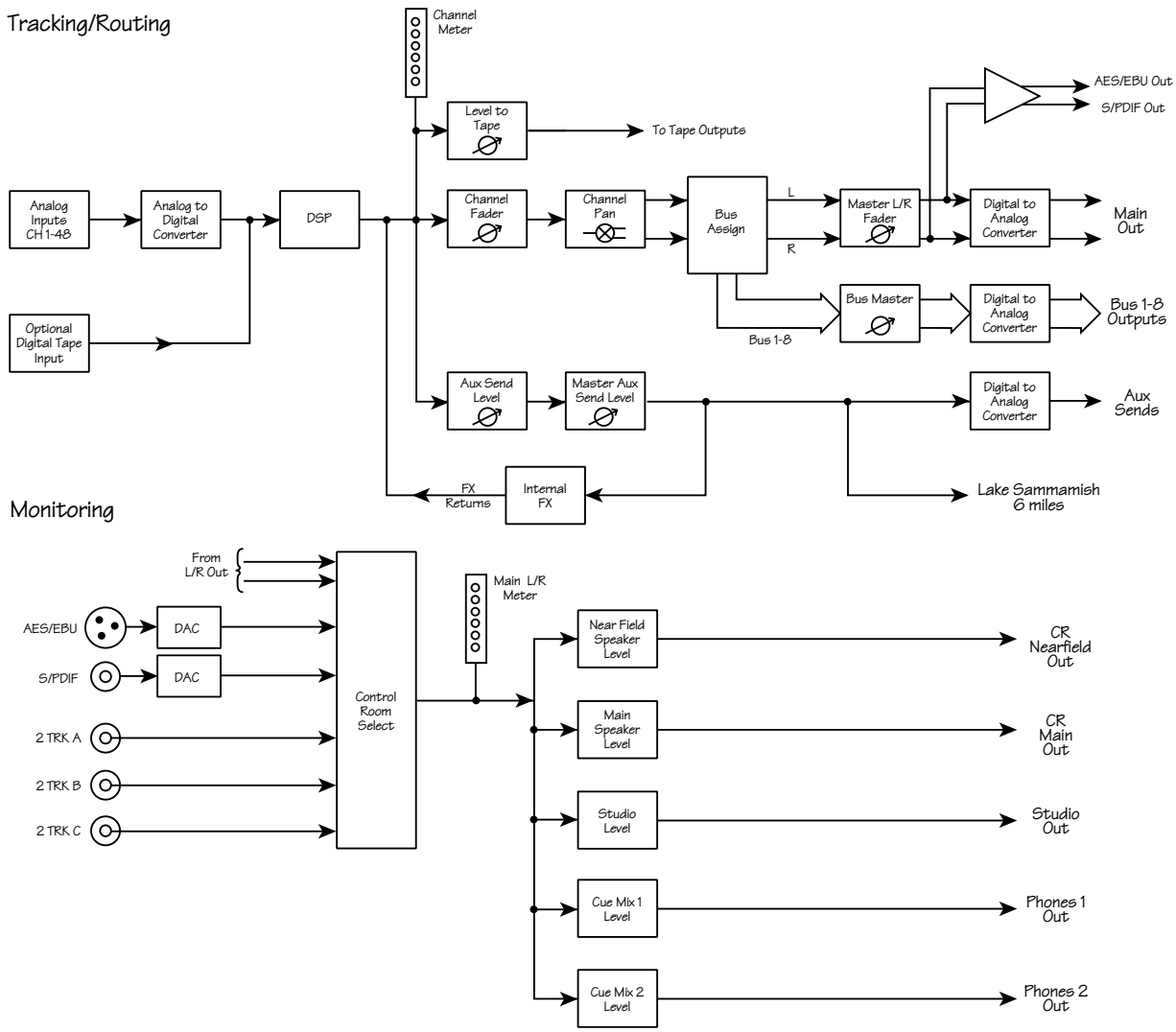


Figure 6. Simplified Signal-Flow Diagram

3. Tutorial Hookup — Let's Get It Working

This is a step-by-step guide to connect a few things to the Digital 8•Bus and get it working. You can pop the Quick Start Video into your VCR and follow along. You will need the following items to proceed:

1 Electronic Keyboard
1 Stereo Power Amplifier
1 pair of Monitor Speakers (you can substitute a pair of powered monitors for the power amplifier/monitor speakers combo)
1 8-track recorder (or multitrack recorder of your choice)
1 AIO•8 or DIO•8 (Tape I/O card)
Miscellaneous cables
1 cup of coffee (or alternate beverage of your choice)

Hookup Stuff

First, connect the Remote CPU to the console.

1. Place the console on your work surface.
2. Place the Remote CPU in some convenient location nearby. It's rack-mountable, so you can put it in a rack if you so desire.

Caution: The Remote CPU weighs 42 pounds, so we recommend that if you mount it in a rack, you place it at the bottom of the rack and provide additional support at the rear of the unit.

The connecting cables can reach up to 15 feet, so the Remote CPU must be within 15 feet of the console. If you're going to use the optional keyboard/monitor/mouse interface devices, you'll want to locate the Remote CPU close enough for your equipment to reach your work surface.

3. Connect the DC power cable between the Remote CPU and the console. Rotate the outer sleeve of the connector clockwise until the sleeve is snug and finger-tight.
4. Connect the data cable between the Remote CPU and the console. Rotate the thumb-screws on each connector clockwise until they are finger tight.
5. Make sure the POWER switch on the Remote CPU is off.
6. Connect the detachable linecord to the Remote CPU.

Next, connect the keyboard, mouse, and video monitor.

Note: These connections are optional, but we recommend using them to get the most from your new Digital 8•Bus console.

1. Plug a PC-compatible keyboard into the KEYBOARD port on the back of the Remote CPU.
2. Plug a PS/2-compatible mouse into the MOUSE port on the back of the Remote CPU.
3. Plug an SVGA video monitor into the VIDEO port on the back of the Remote CPU.

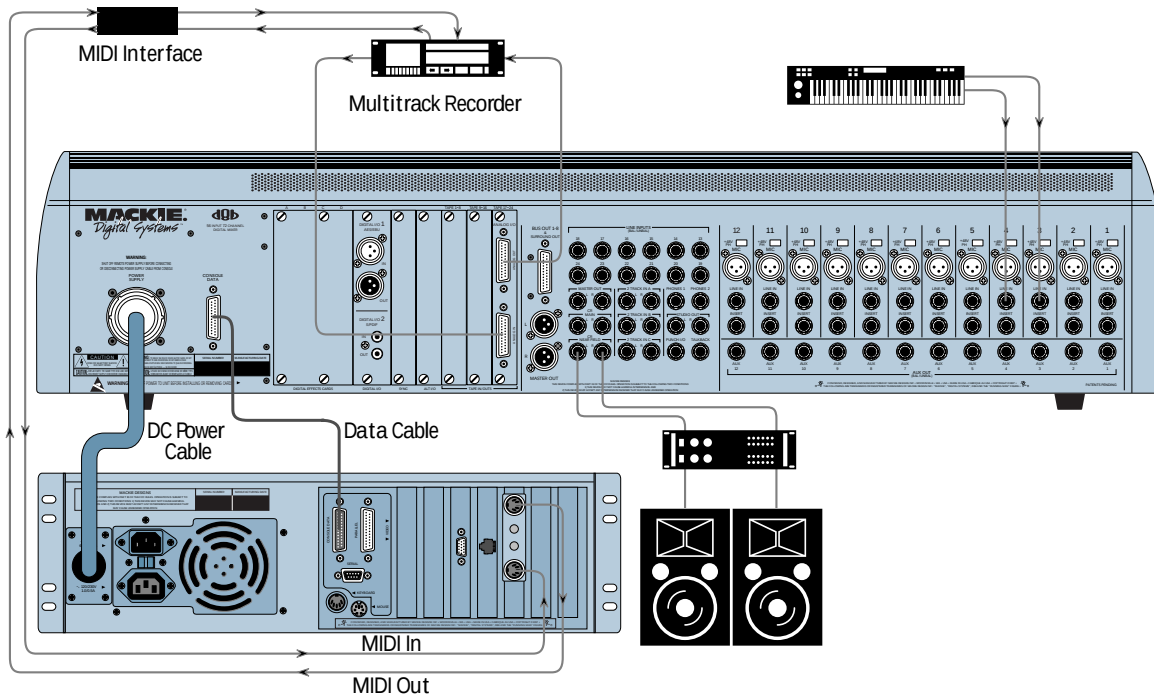
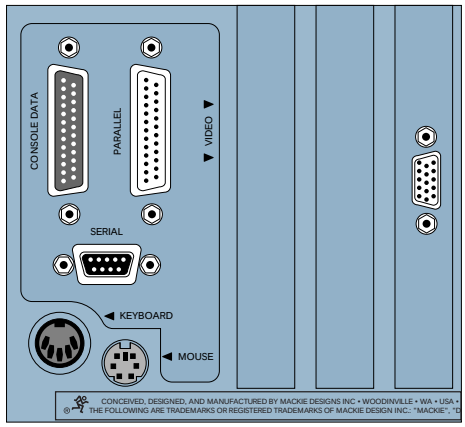


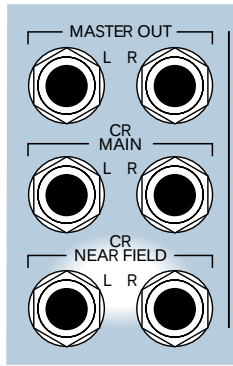
Figure 7. Quick Start Hookup



Note: The video monitor must be a multi-sync monitor or, if not, capable of at least a 72Hz scan rate. We recommend using a 17-inch or larger monitor for best results.

Now connect the audio inputs and outputs to the console.

1. Using standard "guitar cord"-type cables with 1/4" phone plugs, connect the Left and Right CR NEAR FIELD outputs on the rear panel of the Digital 8•Bus to the left and right inputs of the power amplifier.



2. Using heavy-gauge speaker wire appropriate for the power of the amplifier, connect the left and right outputs of the power amplifier to the speaker inputs.

Note: If you're using powered monitors, connect the Left and Right CR NEARFIELD outputs directly to the line inputs on the powered monitors.

3. To connect a recording deck to the Digital 8•Bus, it is necessary to have at least one of the optional Tape I/O cards installed. For this example, we'll use an analog Tape I/O card. This card has two 25-pin D-Sub connectors for connecting the analog Tape I/O signals to your tape deck.

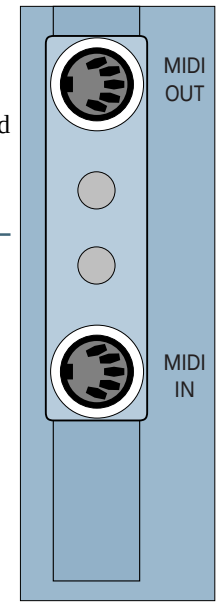
   If you are using the digital Tape I/O card, refer to the Digital 8•Bus Owner's Manual (Appendix F) for connection information.

   The connection on the other end of the cable depends on your recording deck. It could be any number of flavors, including Elco, 1/4" phone plug, RCA phono plug, XLR, 25-pin D-Sub, 3/4" garden hose, etc.

Note: If you're using a patch bay, place it between the Digital 8•Bus and your tape recorder.

Connections for MIDI

1. On the back of the Remote CPU, plug the supplied dual output MIDI jack adapter into the 9-pin D-Sub MIDI connector. The output jack has standard 5-pin MIDI IN and OUT sockets on it. Connect these to the MIDI IN and OUT connectors on your recorder.



Note: Most recorders require a MIDI interface box to go between an external MIDI control device such as the Digital 8•Bus, and its own MIDI I/O. Check your recorder's manual for more information.

Note: If you're using more than one 8-track recorder, you may need to match your device ID with that of the Digital 8•Bus' software. Please consult the Digital 8•Bus Owner's Manual and your recorder's manual for proper settings.

Optional Refreshments

1. Take a sip of coffee.

Power-Up

- Make sure the POWER switch on the Remote CPU is off. Now plug the linecord into an AC outlet properly configured for your model.

Note: The Remote CPU should be treated as you would any computer. We recommend that you use a UPS (Uninterruptible Power Supply) and a surge protector on the AC line.

- Leave the POWER switch off while connecting the peripheral equipment to the console.

Caution: Never connect or disconnect anything except microphone or line-level inputs while the console is powered up.

Turn on the power switch on the front panel of the Remote CPU, then turn on the power to all your peripheral equipment. The Digital 8•Bus takes a few moments to load the Mackie Real Time OS (Operating System) and initialize the DSPs. When the Vacuum Fluorescent Display in the Fat Channel Section indicates EQ settings for channel 1, the console is ready to use.

Now we'll look at some of the basics like setting up system options, creating a session, and creating a default snapshot.

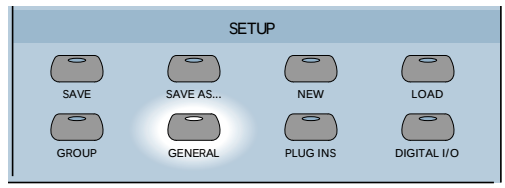
Start-up

System Options

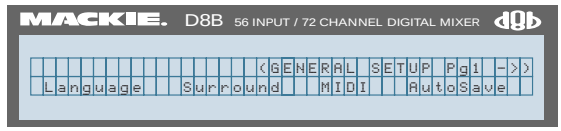
The system options are found in the General Setup menu. You should confirm that all the system settings are correct for your configuration and application. Go here to set the language, surround mode, MIDI settings, Auto Save settings, and Aux Pre/Post Fader setting.

Note: If you're using a digital Tape I/O card, you'll need to do some additional software setups. See the section called "Configuring Digital I/O" in Chapter 3 of the Digital 8•Bus Owner's Manual.

- Press the GENERAL button in the Setup Section.



A menu of options appears in the Fat Channel Display.



- Press the SELECT button below the option you want to change and a new menu appears related to that specific option.

- In general, use the SELECT buttons to scan through available options, and use the V-Pots to adjust parameters (where applicable). Use the PREVIOUS and NEXT buttons to page over to more options (if available).

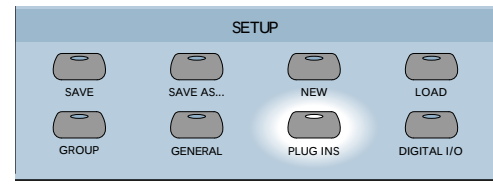
Refer to Chapter 3 ("Start-Up") in the Digital 8•Bus Owner's Manual for more details on each option.

Downloading Plug-Ins

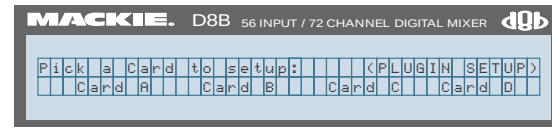
Before beginning a session, you can download the effects algorithms of your choice to the internal FX cards.

Loading Effects with Console Controls:

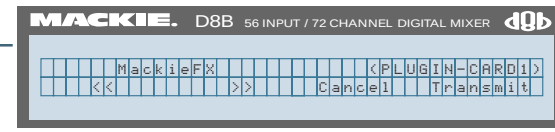
- Press the PLUG INS button in the Setup Section.



A menu of options appears in the Fat Channel Display.



- Press the SELECT button below the card you want to configure. The basic console ships with one FX card installed (CARD A). You can purchase and install up to three more cards to provide more simultaneous effects.



- Use the SELECT buttons below the arrows in the Fat Channel Display to scan through available Plug-Ins. When the Plug-In you want appears, press the SELECT button below Transmit to download the algorithm to the selected FX Card.

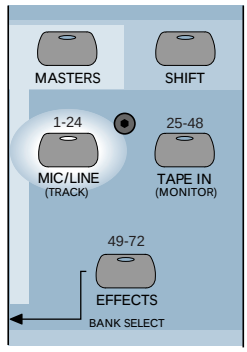
Loading Effects with Mouse and Monitor:

- Click on the "Setup" button in the lower menu bar. The Setup dialog box window appears on the screen.
- Click on "Plug-Ins" on the left side of the setup window.
- Click on the box next to CARD A and select Mackie FX from the drop-down menu. As soon as it's selected, the algorithm is downloaded to the FX Card.

Getting Sound Out

Now that you have set all the options the way you want them, we can make a sample recording and see how the Digital 8•Bus actually works.

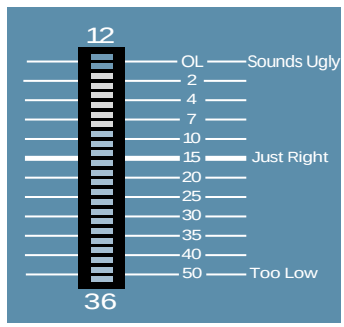
- First, connect a keyboard to channels 3 and 4 line inputs. Channels 3 and 4 MIC buttons should be in the UP position. Turn the faders all the way down, including the MASTER L-R fader.
- Select Fader Bank 1 (MIC/LINE 1–24).



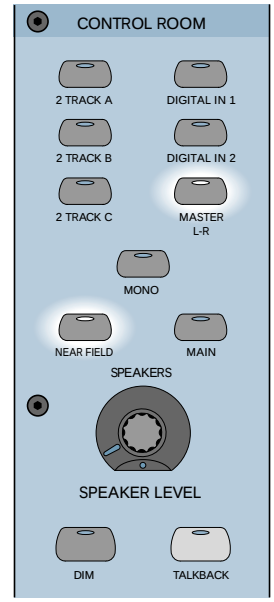
- Set the source — in this case, the keyboard — for unity output level, and watch the channel meters as you adjust the TRIM knob.

Note: The channel meters are pre-fader, so you don't need to adjust the faders for this operation.

- Set the TRIM for a meter indication around –15 (the fat bar on the meter). Under no circumstances should the levels go to the top OL on the meter or you will experience digital clipping, which is a most unpleasant sound.



- Bring up the faders on channels 3 and 4 while the keyboard is providing an input signal. Set the faders at the unity gain mark.
- Slowly bring up the MASTER L-R fader. You may or may not hear sound, depending on the settings in the Control Room Section. Set it at or near the unity gain mark.
- Make sure the MASTER L-R button and the NEAR FIELD button are lit in the Control Room Section.

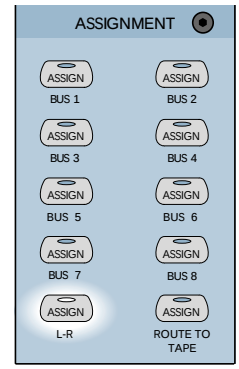


- While playing the keyboard, slowly rotate the SPEAKER LEVEL V-Pot in the Control Room Section and set it at a comfortable listening level.

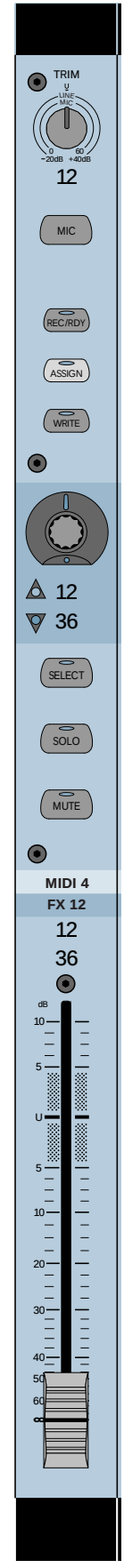
Preparing to Record

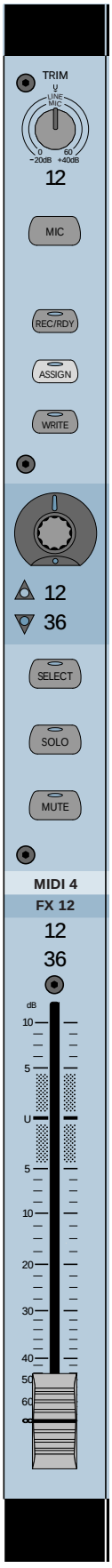
Now that input levels are set, we want to monitor the returns from the recording deck rather than the channel inputs. To avoid double monitoring, turn off the L-R bus assignment on channels 3 and 4.

- With Fader Bank 1 (MIC/LINE 1–24) selected, press the MASTER L-R button in the Bus Assignment Section.



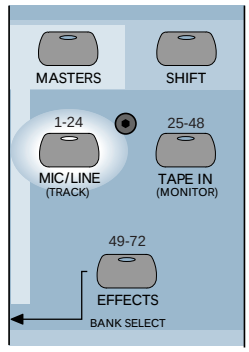
- Turn off the ASSIGN buttons on channels 3 and 4.



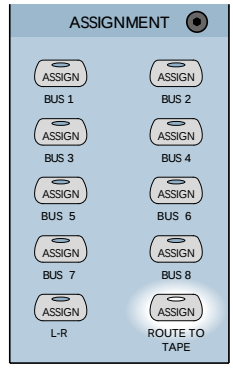


Assigning Channels 3 and 4 to Tracks 3 and 4.

- Make sure Fader Bank 1 is selected (1–24 MIC/LINE).



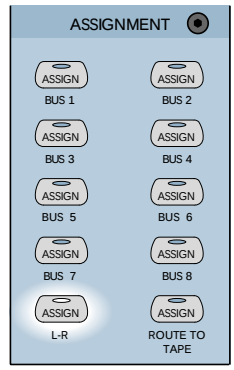
- Press the ROUTE TO TAPE button in the Bus Assignment Section.



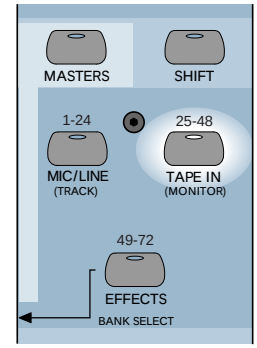
- Press the SELECT button on channel 3.
- Press the ASSIGN button on channel 3. Channel 3 is now assigned to Tape Out 3, which goes to Track 3 on your multitrack recorder.
- Press the SELECT button on channel 4.
- Press the ASSIGN button on channel 4. Channel 4 is now assigned to Tape Out 4, which goes to Track 4 on your multitrack recorder.

Next, assign channels 27 and 28 (which are Tape Out 3 and 4 from the multitrack) to the Left/Right Bus:

- Press the MASTER L-R button in the Bus Assignment Section.



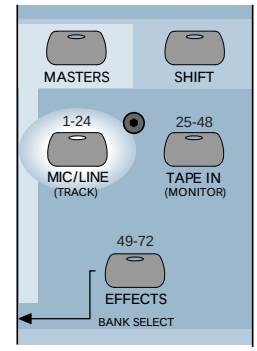
- Select Fader Bank 2 (TAPE IN 25–48).



- Press the ASSIGN buttons on channels 27 and 28 to assign them to the Left/Right bus.

Now arm tracks 3 and 4:

- Select Fader Bank 1 (MIC/LINE 1–24).



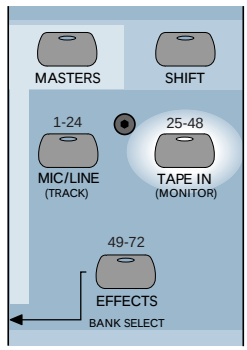
- Press the REC/RDY buttons on channels 3 and 4 to arm the tracks for recording, or press the corresponding buttons on the tape recorder.
- Start playing the keyboard. The meter indications on the tape recorder should be equivalent to the meter indications on the console.

Important: The channel faders do NOT set output levels to the recorder. If the meter indications on the recorder are too high or too low, you can adjust the levels by pressing the LEVEL TO TAPE button in the V-Pot Select Section. The channel V-Pots become level controls for the tape outputs. Adjust the V-Pots so the meter indication on the tape recorder is at its recommended level.

Next, get signal from the tape back to the console and out the Control Room speakers (or headphones):

- Put your multitrack recorder into Record/Pause mode. This will allow the signal to pass through the recorder and back to the console.

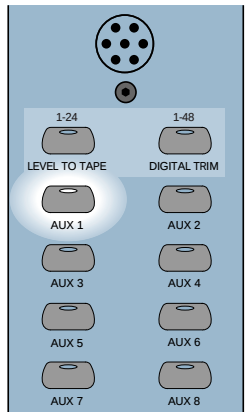
- Select Fader Bank 2 (TAPE 25–48).



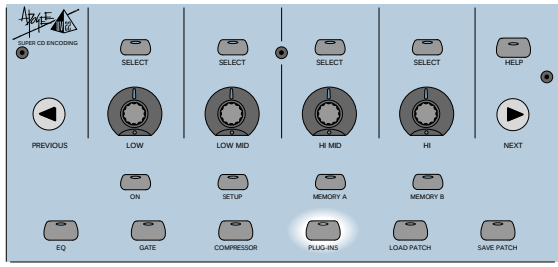
- Turn the faders down on channels 27 and 28. The TRIM control at the top of the channel strip has no effect when Fader Bank 2 is selected.
- Start playing the keyboard and you should see the meter on channel 27 indicating the signal.
- Slowly increase the faders on channels 27 and 28 to their unity position. You should hear the signal in the speakers. If it's too loud, turn the SPEAKER LEVEL V-Pot down in the Control Room Section.

You can add effects to the monitor signal, without affecting the signal being recorded onto tape.

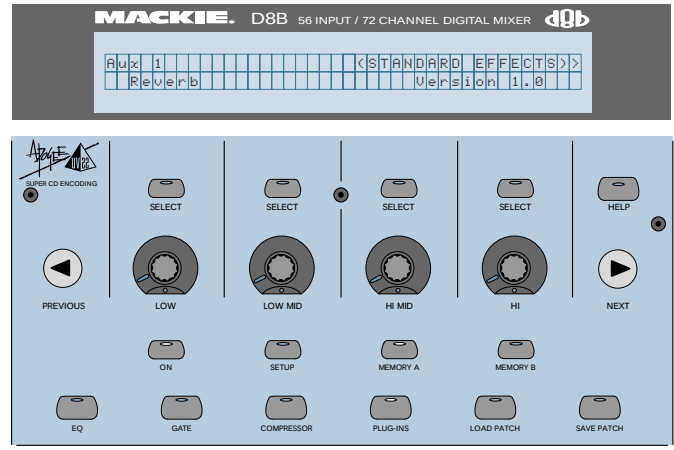
- Select AUX 1 in the V-Pot Select Section.



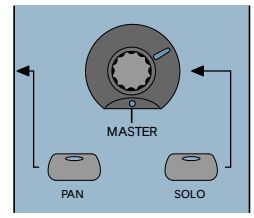
- Press the PLUG-INS button in the Fat Channel Section.



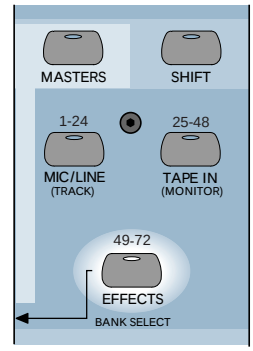
- Rotate the first V-Pot in the Fat Channel Section to select the effect you want to use with Aux 1. Press the NEXT button to scroll through the various parameters of the effect and adjust accordingly.



- Adjust the V-Pots on channels 27 and 28 to set their aux send levels.
- Adjust the Master V-Pot to set the overall aux send level to the internal FX card.



- Select Fader Bank 3 (EFFECTS 49–72). In this bank, faders 1 and 2 adjust the effects return level of Aux 1. To hear the effects, bring up faders 1 and 2. Make sure they are assigned to the L-R bus.

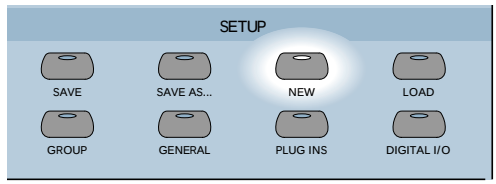


Saving Your Session

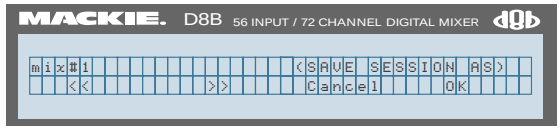
When you first turn on the Digital 8•Bus, a session named Startup is loaded by default. You should create a new session any time you start a new project. After you've started a project, it's a good idea to save it under a new name whenever you want to backup what you've already done. That way, if things go haywire, you can always go back to where you were and try again.

Saving your session with console controls:

- Press the SAVE AS... button in the Setup Section.



- A suggested name for the session appears in the Fat Channel Display. You can either accept the suggested name, or you can enter a new name.



- To enter a new name, use the V-Pot to change the characters, and use the SELECT buttons to move the cursor.
- When you've finished, press the SELECT button under OK to save the new session.

Saving your session with mouse and monitor:

- Click on "File" in the upper menu bar. Select "Save Session As..." from the drop-down menu.

File Edit Channel Automation Windows
New Session Ctrl N
Open Session... Ctrl O
Close Window Ctrl W
Save Session Ctrl S
Save Session As...
Disk Manager Ctrl D

- The Save File As... dialog box appears with a suggested name for the session. You can either accept the suggested name, or type in a new name with the keyboard.

- When you've finished, click on the "Save" button to complete the operation.

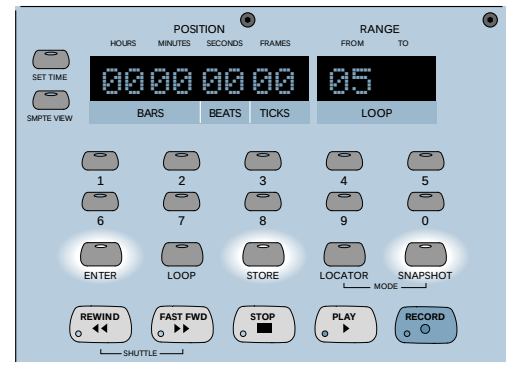
Creating a Default Snapshot

A snapshot is just what it implies; it's a picture of all the settings of the console (except for the analog Trim controls, which aren't automated). The Digital 8•Bus has a default snapshot saved in memory called Normalled. Recalling this snapshot places the console into what we consider to be a normal state, with faders down, pans centered, aux sends off, etc. This allows you to quickly reset the console back to a convenient starting point when you finish a project.

You may prefer different normal settings for the console (for example, with all the faders at unity). If so, you can create a default snapshot for quickly normalling the console to the settings you prefer.

To create a default snapshot:

- Set all the controls on the console to your preferred positions.
- Press the SNAPSHOT button in the Transport Section.
- Press the STORE button.
- Enter two digits with the number buttons that haven't been used yet for a snapshot (for example, enter "05").
- Press the ENTER button. The default snapshot has now been stored in memory.



To recall your new default snapshot:

- Make sure the SNAPSHOT button in the Transport Section is on.
- Enter the two-digit number you used to store your default snapshot with the number buttons (for this example, enter "05").
- Press the ENTER button. The snapshot is now loaded into the console.

You can store and recall up to 100 snapshots from the console surface (00–99), and up to 150 from the screen.

Note: Snapshots are stored with the current session and cannot be copied from one session to another.

Obviously, there's a lot more to using the Digital 8•Bus, and we'll get into a little more depth further on in the Quick Start Guide. The purpose of this exercise is to show you the fundamentals of getting signal to the tape recorder and back.

4. General Guidelines

Three Things to Keep in Mind (Reprise)

This is a reminder, that as you become familiar with the Digital 8•Bus, you'll find it helpful to keep these three questions in mind at all times:

1. *What Fader Bank is selected?*
2. *What channel is selected?*
3. *What is the V-Pot assignment?*

In 90% of the cases, if something isn't working like you expect, it is because one of these three settings isn't where you intend it to be.

Setting Levels

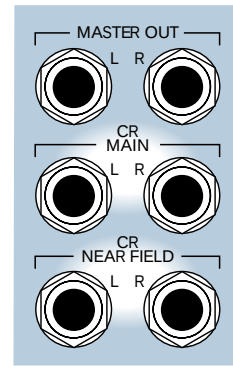
Input Sensitivity Adjustment Procedure for Channels 1–24

(–15 dB FS on the meter is equivalent to +5 dBu analog)

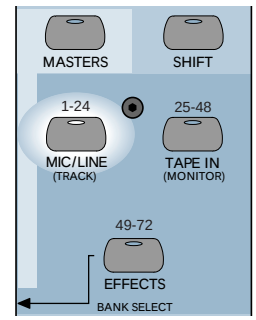
The input sensitivity adjustment procedure is similar to that of an analog mixing console because the input section for channels 1–24 is the same as our analog large-format consoles.

FOLLOW THIS SENSITIVITY ADJUSTMENT PROCEDURE FOR EACH CHANNEL IN USE (Channels 1–24):

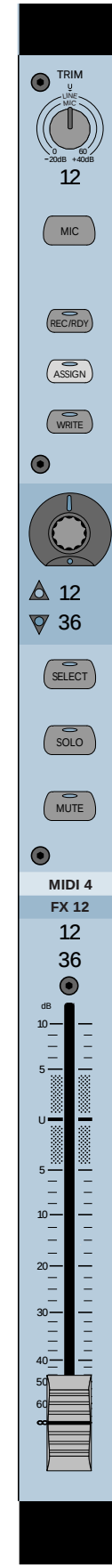
1. If you're starting out from scratch, it's a good idea to normal the console (also called "zeroing") to some starting point, such as all level controls down, and EQ and pan controls centered. Snapshot 00 is pre-programmed with our default factory settings—our version of a "normalled" console. You can reprogram Snapshot 00 so that it resets the console to your preferred "normal state," or keep the factory default settings and save your own settings to another snapshot (Snapshot 01, for example). See "Creating a Default Snapshot" in the previous section.
2. Connect a signal to a channel.
   • If the channel is used with a microphone, the MIC switch should be down.
   • If the channel is used with a line input, the MIC switch should be up.
3. Connect the Control Room output to your control room amplifier/speaker combination, so you can monitor the signal.



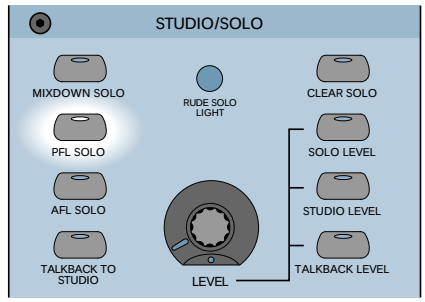
4. Select Fader Bank 1 by pressing the MIC/LINE (1–24) button.



5. Set the channel strip controls as follows: TRIM controls all the way counter-clockwise (–20 dB), and all the faders to their "U" (unity) markings. Turn the MASTER L-R fader all the way down.



6. Press the PFL SOLO button in the STUDIO/SOLO section. In this mode the faders do not affect the solo level at the Control Room output.



7. Press the channel SOLO button. The LED in the button lights.
8. Make appropriate "noise" into the channel input. For example, have a performer play/sing/strike something or someone, etc. at the level they're going to record or perform. Don't just play a single sustained note, but rather, jam away as you would during a recording or performance. If the channel is being used for a tape input during mixdown, roll an already-recorded track from your recorder.
9. Adjust the TRIM control. The goal is to get the channel meter reading at or around –15. The peaks should regularly hit, and occasionally exceed, the –15 designation on the meter. This is equivalent to a +4 dBu analog level, and provides plenty of headroom for transient peaks before reaching 0 dB FS.
   To monitor the signal, press SOLO LEVEL in the Studio/Solo Section and adjust the LEVEL V-Pot. Make sure the SPEAKER LEVEL V-Pot in the Control Room Section is turned up.
10. If desired, press the channel's SELECT button and adjust the EQ in the Fat Channel (see "Using Internal Channel Processing and Internal Effects" in the next section). You may need to readjust the channel's TRIM control after changing the EQ setting.
11. Repeat steps 5–10 on the next channel that is being used.
12. Once you've achieved the proper input sensitivity settings using this method, clear all soloed channels and monitor the mix in the Control Room outputs (with all channels assigned to the L-R bus, and L-R selected as the Control Room source) or the Main L-R Output. Slowly bring up the Master L-R fader to a comfortable listening level and use the channel faders to adjust individual levels. Leave the TRIM controls alone. This will give you the best signal-to-noise ratio in your mix.

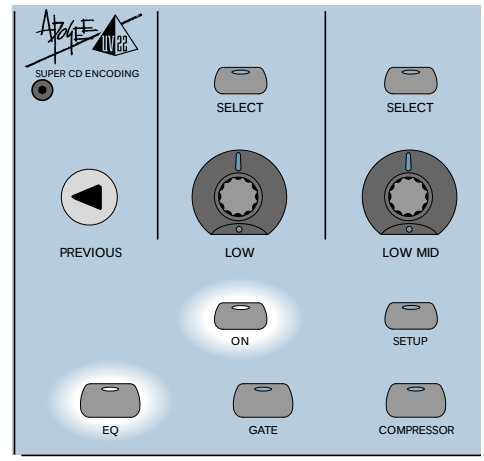
Note: If you use the built-in compressor on any channels, you can get away with turning the TRIM control up a little higher, since the compressor will reduce the chance of transient peaks reaching digital clipping. Of course, the tradeoff is that you will lose some dynamic range (see "Using The Compressor" in Chapter 6 of the Digital 8•Bus Owner's Manual).

Using Internal Channel Processing and Internal Effects

Every channel on the Digital 8•Bus has its own individual 4-band parametric EQ, compressor, and gate. In fact, each channel can store two separate settings for the EQ, compressor, and gate. Want more? You can dynamically automate the settings for the EQ, compressor, and gate referenced to time code, using the built-in Mackie Real Time OS Automation software.

EQ

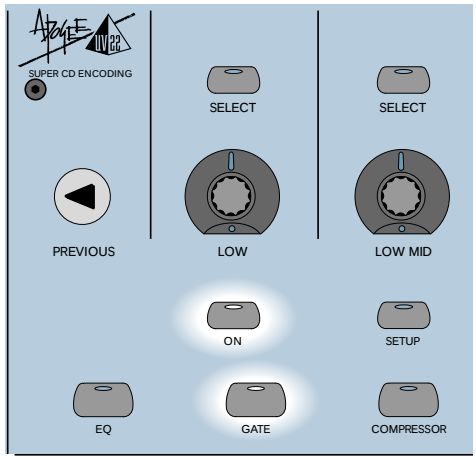
When you press a channel's SELECT button, its channel number appears in the CHANNEL SELECT display, and its EQ settings appear in the Fat Channel Display. If they don't, make sure the EQ button in the Fat Channel Section is lit. Also make sure the ON button is lit.



- You can toggle through the parameters (gain, frequency, Q) for each band by pressing the SELECT button under each parameter in the Fat Channel Display.
- You can adjust a parameter's value by turning the V-Pot below each parameter.
- The EQ settings are stored in MEMORY A. Press the MEMORY B button to create a different EQ curve. Now you can quickly switch back and forth between the two EQ settings to compare how they sound, or to make a deliberate change to the sound of the instrument or voice in real time.

Gate

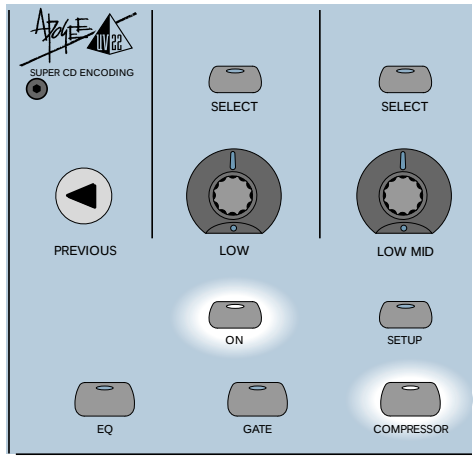
Press the GATE button to view the selected channel's gate settings.



- You can adjust each parameter's value by turning the V-Pot below each parameter.
- Press the NEXT button to view offscreen parameters that won't fit in the display.
- The gate settings are stored in MEMORY A. Press the MEMORY B button to create different settings for the gate. Now you can quickly switch back and forth between the two gate settings to compare how they sound, or to make a deliberate change to the sound of the instrument or voice.

Compressor

Press the COMPRESSOR button to view the selected channel's compressor settings.



- You can adjust each parameter's value by turning the V-Pot below each parameter.
- Press the NEXT button to view offscreen parameters that won't fit in the display.
- The compressor settings are stored in MEMORY A. Press the MEMORY B button to create different settings for the compressor, perhaps to make it work as a limiter. Now you can quickly switch back and forth between the two compressor settings to compare how they sound, or to make a deliberate change to accomodate a variation in the dynamics of an instrument or voice.

Internal Effects

The Digital 8•Bus is shipped with one internal effects card (MFX™) installed. This card is capable of processing two discrete mono input/stereo output digital effects. You can install up to three more effects cards, for a total of eight mono input/stereo output digital effects that can operate simultaneously.

The first eight Aux Sends are normalled to the internal effects cards:

Aux 1 and 2 feed Card A
Aux 3 and 4 feed Card B
Aux 5 and 6 feed Card C
Aux 7 and 8 feed Card D

The stereo returns from the internal effects cards are the 16 FX RETURNS in Fader Bank 3:

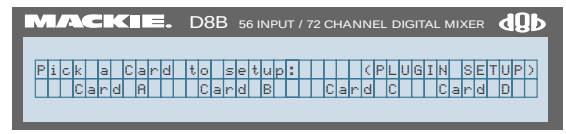
Card A = FX 1 and 2
FX 3 and 4
Card B = FX 5 and 6
FX 7 and 8
Card C = FX 9 and 10
FX 11 and 12
Card D = FX 13 and 14
FX 15 and 16

Plug-Ins

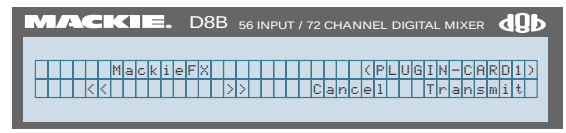
MFX™

The Mackie Standard Effects Package contains a variety of effects that you can download to the FX cards, including reverb, chorus, and delay.

- Press the PLUG-INS button in the Setup Section and the Plug-Ins setup menu appears in the Fat Channel Display.



- Press the SELECT button below the card you want to configure.

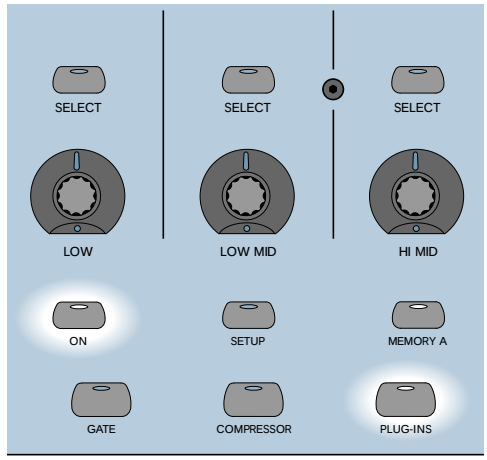


- Press the SELECT buttons below the arrows in the display to scroll through the available plug-ins.

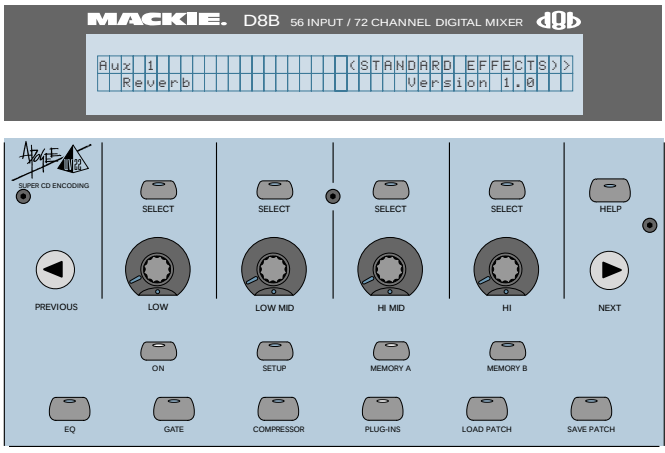
- When the plug-in you want to use appears in the display, press the SELECT button below TRANSMIT. The selected plug-in will now be downloaded to the FX Card.
- Repeat for each card you have installed.

Now that you've configured the cards with the effects you want to use, you can adjust the individual parameters for each effect.

- Press the PLUG-INS button in the Fat Channel Section.



- The Fat Channel Display instructs you to select an Aux Send that has an FX Plug-In Card installed. If you have only one card installed, press AUX 1 or AUX 2 in the V-Pot Select Section.
- Rotate the first V-Pot to scroll through the available effects for the selected FX card. Stop when the one you want appears in the display.

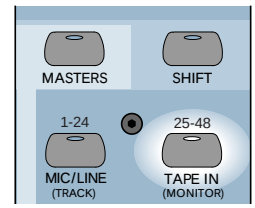


- Press the NEXT button to view the parameters associated with the selected effect. Rotate their corresponding V-Pots to adjust their parameters to taste.

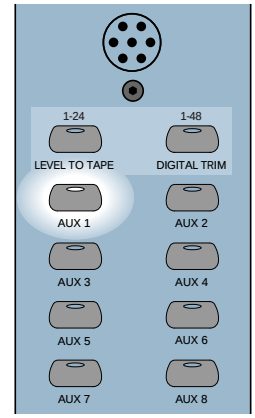
Refer to "Selecting Internal Effects" in Chapter 6 of the *Digital 8•Bus Owner's Manual* for more information on the Mackie FX plug-in.

Once you've configured the cards with the effects you want and adjusted the parameters for each effect, you can assign individual channels to the aux send that corresponds to the effect you desire for each channel. As an example, let's say that you have Card A programmed with reverb on Aux 1 and delay on Aux 2, and you want to add reverb to tape returns channels 25 through 28, and delay to channel 29.

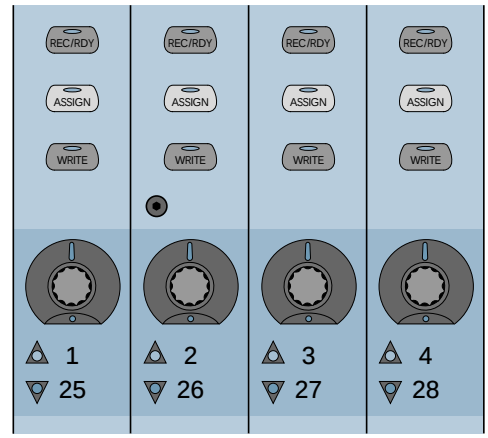
- Press the TAPE IN button in the Master Fader/Bank Select Section to select Fader Bank 2.



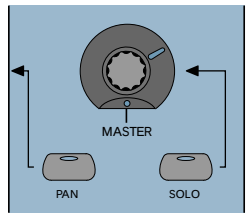
- Press AUX 1 in the V-Pot Select Section.



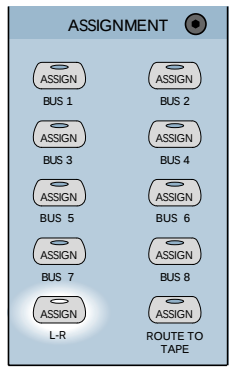
- The channel V-Pots are now Aux 1 send level controls. Adjust the V-Pots on channels 25 through 28 for the amount of send level you want to send to the Aux 1 bus.



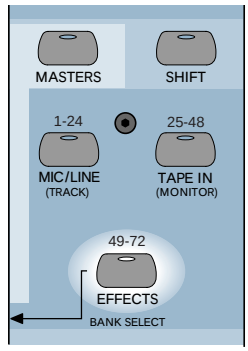
- Adjust the Master V-Pot in the Master V-Pot Section to adjust the overall amount of Aux 1 signal to send to the internal reverb.



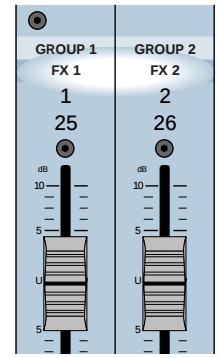
- Press AUX 2 in the V-Pot Select Section.
- Adjust the channel 29 V-Pot for the amount of send level you want to send to the Aux 2 bus.
- Adjust the Master V-Pot in the Master V-Pot Section to adjust the overall amount of Aux 2 signal to send to the internal delay.
- Press the MASTER L-R button in the Bus Assignment Section.



- Press the ASSIGN buttons on channels 25 through 28 if you want the dry signal returned to the L-R bus. Leave the ASSIGN buttons off if you want only the wet signal returned to the L-R bus via the internal effects returns.
- Press EFFECTS in the Master Fader/Bank Select Section to select Fader Bank 3.



- Adjust FX 1 and 2 faders and pans for the amount of reverb you want returned to the L-R bus.
- Adjust FX 3 and 4 faders and pans for the amount of delay you want returned to the L-R bus. Make sure FX 1–4 are assigned to the L-R bus.



IVL Vocal Studio

The Digital 8•Bus ships with a free, time-limited, fully-functional trial version of the IVL Vocal Studio software package. Trial versions of other effects processors will be included as they become available. These plug-in software packages add functionality to the console and provide you with more creative choices for your artistic endeavors.

Note: The IVL Vocal Studio Plug-In uses all of the DSP resources of a single MFX card. An additional MFX card is included in the purchase price of the IVL Vocal Studio software package.

IVL Vocal Studio: Harmony Example

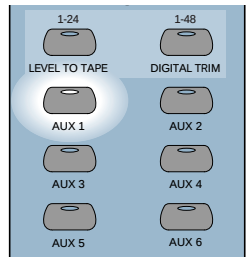
This is a tutorial to introduce you to the IVL Vocal Studio and help you discover what it can do for you. In addition, there are a number of Vocal Studio presets which you can load to demonstrate some typical applications. Finally, refer to Appendix E in the Digital 8•Bus Owner's Manual for more details on the operation and capabilities of this unique tool.

In this exercise we are going to use the Harmony Mode to produce two vocal harmony parts to go along with a lead vocal. We'll also use the built-in reverb to add reverberation to the lead vocal and harmony parts, which we can return to the L-R mix independently from the dry harmony parts. This is best performed using a prerecorded lead vocal track.

If you haven't already done so, download the Vocalist Plug-in to Card A. Follow the instructions for downloading the Mackie FX Plug-in, but select Vocalist instead.

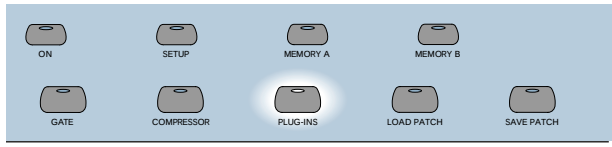
Using the Vocal Studio
From the console:

1. Select Aux 1 in the V-Pot Select Section.

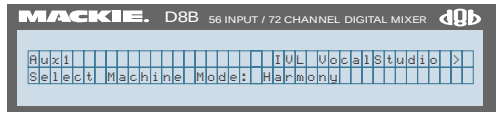


Turn the V-Pot up to about the 2 o'clock position on the channel playing back the lead vocal track to route the signal to Aux Send 1 and the internal FX card.

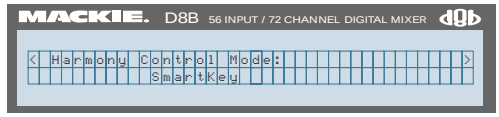
2. Press the Plug-Ins button in the Fat Channel Section.



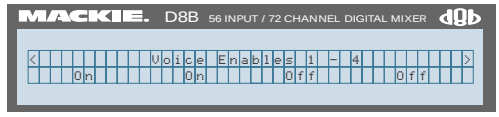
3. The Vocal Studio menu appears in the Fat Channel Display. You can select either Harmony or Pitch Correct mode by pressing the lit SELECT button. Make sure Harmony appears in the display.



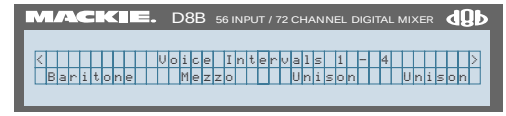
4. Press the NEXT button to select the Harmony Control Mode. Press the lit SELECT button so that SmartKey appears in the display.



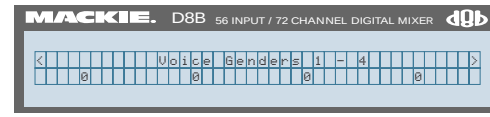
5. Press the NEXT button to select Voice Enables. Press the SELECT buttons to turn on and off the four voices. Leave voices 1 and 2 on, and voices 3 and 4 off.



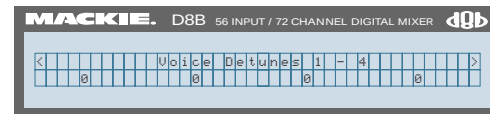
6. Press the NEXT button to select Voice Intervals. This determines how much higher or lower the harmony part is from the lead part. Press the SELECT buttons (or rotate the V-Pots) to choose between Bass, Baritone, Tenor, Unison, Alto, Mezzo, and Soprano. Set voice 1 to Baritone and voice 2 to Mezzo.



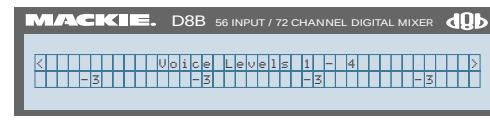
7. Press the NEXT button to select Voice Genders. At zero, the voice is unmodified. Rotate the first V-Pot counterclockwise to apply increasing male characteristics to the Baritone harmony voice, and rotate the second V-Pot clockwise to apply increasing female characteristics to the Mezzo harmony voice.



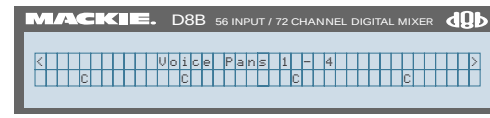
8. Press the NEXT button to select Voice Detunes. This adjusts the pitch of the harmony voice slightly above or below the exact note it is creating, to create a more natural sound. You can leave these set to zero for now.



9. Press the NEXT button to select Voice Levels. This adjusts the relative level of each voice in decibels (dB). You can leave these set to –3.

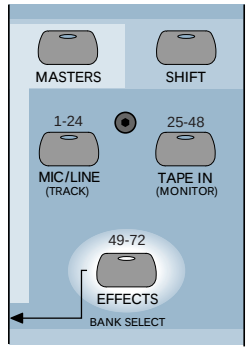


10. Press the NEXT button to select Voice Pans. This allows you to pan the harmony voice to one side or the other. Rotate the first V-Pot counterclockwise to pan the Baritone voice to the left side. Rotate the second V-Pot clockwise to pan the Mezzo voice to the right side.



11. Roll the tape. Make sure the lead vocal track is turned up and center-panned between the left and right sides.

12. Press the EFFECTS button in the Bank Select Section to select Fader Bank 3.



13. Make sure FX1–4 are assigned to the L/R bus. Turn up the FX1 fader to hear the Baritone harmony. You can pan it to the left by selecting PAN in the Master V-Pot Section and turning the FX1 V-Pot fully counterclockwise.
14. Turn up the FX2 fader to hear the Mezzo harmony. You can pan it to the right by turning its V-Pot fully clockwise.
15. Turn up the FX3 and FX4 faders to hear the reverberation effect on all three parts.

Using the Vocal Studio
From the screen:

1. Click on Aux 1 in the V-Pot Select Section.

   Click on the V-Pot on the channel playing back the lead vocal track and bring it up to 0 dB (about 2 o'clock) to route the signal to Aux 1 send and the internal FX card.
2. Click on Card A in the lower menu bar to open the Vocalist Control Panel.
3. Click on "Harmony" in the upper-right corner of the control panel (just below Aux 1).

4. Make sure the OUTPUT MODE is set to Stereo.
5. Click on "SmartKey" under CONTROL MODE in the upper part of the control panel.
6. Turn off voices 3 and 4 by clicking in the VOICE MUTING box at the bottom of the control panel.
7. Click on the Interval button on the left side of the control panel. This determines how much higher or lower the harmony part is from the lead part. Click on the slider for voice 1 and move it down to Baritone. Click on the slider for voice 2 and move it up to Mezzo.
8. Click on the Gender button on the left side of the control panel. At zero, the voice is unmodified. Click on the slider for voice 1 and move it down to apply increasing male characteristics to the Baritone harmony voice. Click on the slider for voice 2 and move it up to apply increasing female characteristics to the Mezzo harmony voice.

9. Click on the Detune button on the left side of the control panel. This adjusts the pitch of the harmony voice slightly above or below the exact note it is creating, to create a more natural sound. You can leave these set to zero for now.

10. Click on the Volume button on the left side of the control panel. This adjusts the relative level of each voice, in decibels (dB). You can leave these set to –3.

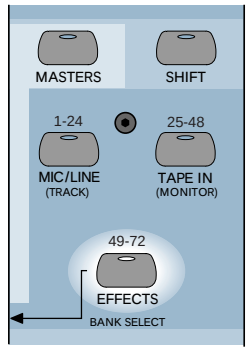
11. Click on the Pan button on the left side of the control panel. This allows you to pan the harmony voice to one side or the other. Click on the slider for voice 1 and move it to the left to pan the Baritone voice to the left side. Click on the slider for voice 2 and move it to the right to pan the Mezzo voice to the right side.

12. Click on the Styles button on the left side of the control panel. This provides a number of different options to add more realism and personality to the harmony voices. Feel free to experiment with these later. For now, you can leave them all at their default settings.

13. Click on the Key/Scale button on the left side of the control panel. This defines the key (e.g., key of C, key of G, etc.) and the scale (e.g., major, minor, diminished 7th, etc.) of the song. If you know the key the lead vocal is in, go ahead and select it. Otherwise, leave it set in the key of C.

14. Click on the Reverb button in the lower-right corner of the control panel. The Reverb controls appear at the bottom of the control panel. Set all of the controls to their 12 o'clock positions by clicking and dragging up on them. Set the HARMONY FX SEND control fully clockwise (0 dB).

15. Roll the tape. Make sure the lead vocal track is turned up and center-panned between the left and right sides.
16. Click on the EFFECTS button in the Bank Select Section to select Fader Bank 3.



17. Make sure FX1–4 are assigned to the L-R bus. Click and drag the FX1 fader up to hear the Baritone harmony. You can pan it to the left by clicking on PAN in the Master V-Pot Section and then clicking and dragging the FX1 V-Pot fully counterclockwise.
18. Click and drag the FX2 fader up to hear the Mezzo harmony. You can pan it to the right by clicking and dragging its V-Pot fully clockwise.
19. Click and drag the FX3 and FX4 faders up to hear the reverb effect on all three parts.

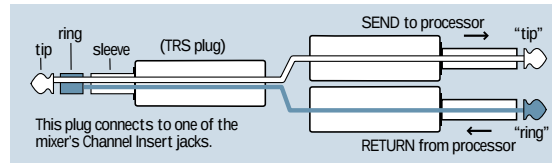
There are several other control modes available in the IVL Vocal Studio. Manual Mode and SmartChord Mode require a MIDI input from a keyboard or sequencer to operate. Pitch Shift Mode allows you to set a chromatic interval between the lead vocal and the harmony voices to create true parallel harmonies. In addition, there is another operating mode called Pitch Correct, which you can use to fix out-of-tune vocal parts. More information is provided in Appendix E in the Digital 8•Bus Owner's Manual, and in the IVL Vocal Studio Owner's Manual which you receive when you purchase the IVL Vocal Studio software.

Using External Effects

We've built in the most common effects packages that you're likely to use for recording, post-production, or live sound purposes. However, some people have favorite effects boxes that they like to use, perhaps even to produce a signature sound. The use of external effects is straightforward.

If you want to apply an external analog or digital effect to only one channel, use the INSERT jacks for channels 1–12 (only). This is a TRS jack specially configured as a combination analog Send/Return connection point (Tip = Send, Ring = Return, Sleeve = Ground). With nothing plugged into the INSERT jack, the send signal is directly connected to the return pin via the normalling jack.

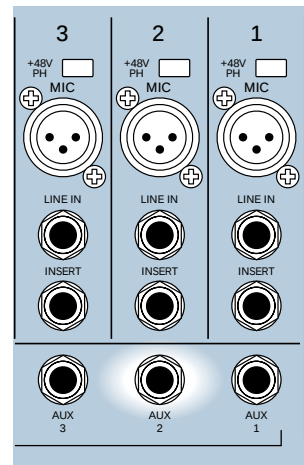
- The Insert Send signal comes after the Mic/Line preamp and TRIM control, and just before the analog-to-digital converter.
- Connect the Send signal to the input jack of the external processor.
- Connect the output from the external processor to the Return connection of the INSERT jack.



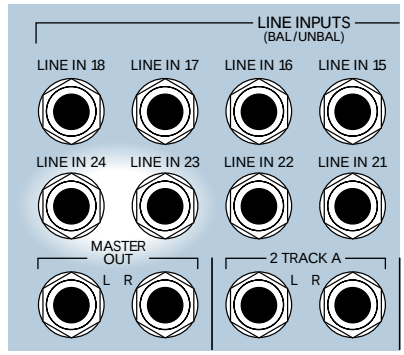
If you want to route a number of channels to a single external effect, use an aux send. The Digital 8•Bus has a total of 12 aux sends that can be used for effects or monitors. The first eight aux sends are routed to the internal effects cards as well as the AUX OUT jacks. You can use an internal effect and its corresponding aux send simultaneously. However, you can choose not to use an internal effect by leaving its associated FX Return control (Fader Bank 3) turned down (or turn the PLUG-INS off in the Fat Channel). The Aux Send on the rear panel can always be used to send a signal to an external effect.

As an example, let's say you want to use Aux 2 as a send to an external digital delay.

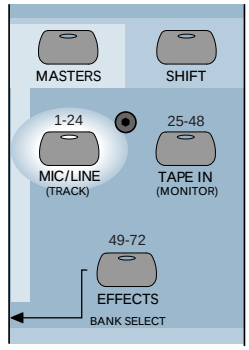
- Connect AUX 2 on the rear panel of the Digital 8•Bus to the input of the external digital delay.



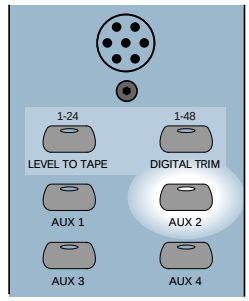
- Connect the output of the digital delay to an unused LINE IN (channels 13–24) on the rear panel of the Digital 8•Bus. If the digital delay has a stereo output, connect it to two LINE IN jacks on the Digital 8•Bus. For this example, let's connect it to LINE IN 23 and 24.



- Press the MIC/LINE button in the Master Fader/Bank Select Section to bring up Fader Bank 1.

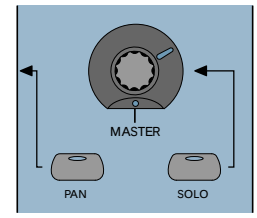


- Press AUX 2 in the V-Pot Select Section.

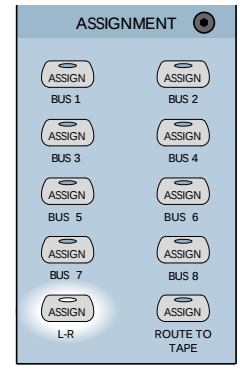


- The channel V-Pots are now Aux 2 send level controls. Adjust the V-Pots on the vocal channels for the amount of send level you want to send to the Aux 2 bus.

- Use the Master V-Pot in the Master V-Pot Section to adjust the overall amount of Aux 2 signal to send to the external digital delay.



- Press the MASTER L-R button in the Bus Assignment Section.



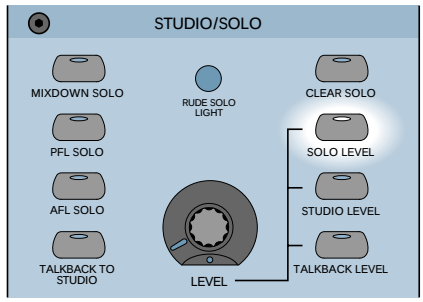
- Press the ASSIGN buttons on the channels assigned to Aux 2 if you want the dry signal returned to the L-R bus. Press the ASSIGN buttons on channels 23 and 24 to assign the wet signal to the L-R bus.
- Adjust the channel 23 and 24 fader levels for the amount of digital delay effect you want returned to the L-R bus.

Soloing

The solo function is useful for isolating and listening to an individual channel or aux send without affecting the signal at the main outputs. When a SOLO button is pressed, the signal at the Control Room Output (MAIN and NEAR FIELD) is interrupted and replaced with the signal on the stereo solo bus.

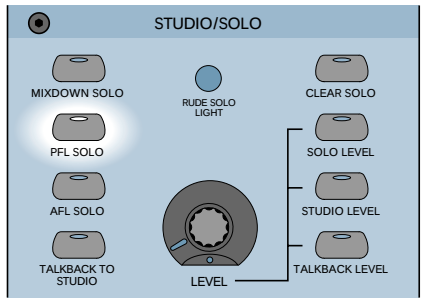
- The solo level is adjusted separately from the Control Room Speaker Level (but is still affected by the Control Room Speaker Level).

- Press the SOLO LEVEL button in the Studio/Solo Section and use the LEVEL V-Pot to adjust the solo level in the Control Room Output.



By default, the solo signal is tapped from a channel post-fader. This is useful if you want to solo several channels and adjust the balance between them. Sometimes it's useful to solo a channel pre-fader so you can hear it even when the fader is turned down (to find and eliminate an annoying buzz, for example, or to set the proper input sensitivity level on a channel).

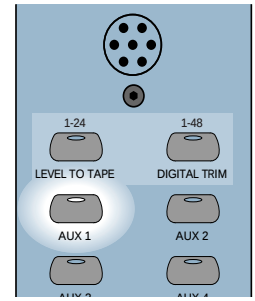
- Press the SOLO PFL (Pre-Fader Listen) button in the Studio/Solo Section to change the solo function to pre-fader.



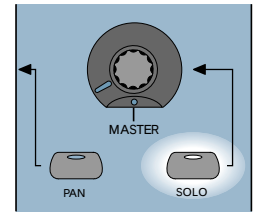
Note: When switching from AFL to PFL, be wary. If the fader is set below unity (the "U" symbol), and you press the SOLO AFL button in the Studio/Solo Section to turn it off (i.e., change to pre-fader), the solo signal will become louder; much louder if the fader is below about –5 dB. This could come as a rude surprise!

You may want to solo an aux send so you can hear the signals being sent to an external effect or floor monitor.

- Press the AUX button in the V-Pot Select Section to select the Aux bus that you want to solo.



- Press the SOLO button in the Master V-Pot Section to solo the selected Aux bus. The signal is pre-fader (Aux Master V-Pot) by default. The SOLO PFL button has no effect when an aux send is soloed.



The MIXDOWN SOLO button in the Studio/Solo Section allows you to solo channels in the Main L-R output. When you solo a channel with MIXDOWN SOLO turned on, it automatically mutes all the other channels, and only the soloed channel can be heard. Soloing additional channels unmutes them so they can be heard in the L-R output.

Note: PFL and AFL SOLO have no effect when MIXDOWN SOLO is active. You can monitor the soloed channels in the Control Room by selecting MASTER L-R in the Control Room Section.

5. Hookup for Multitrack Recording

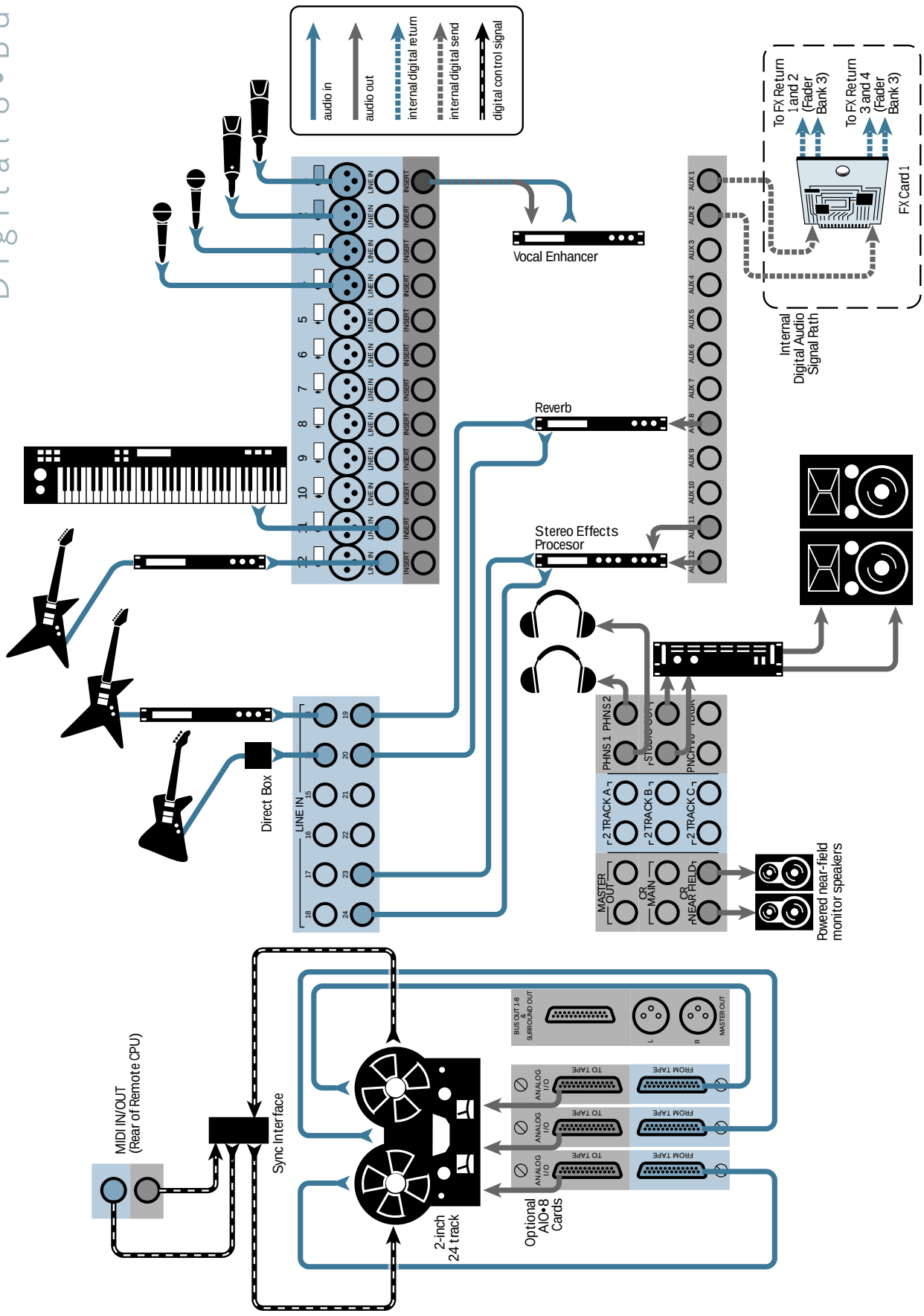


Figure 8. Tracking Hookup

Hookup for Tracking

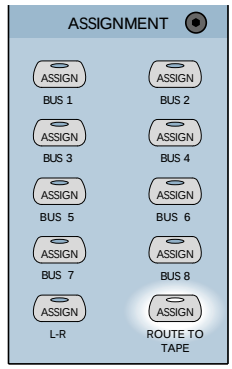
Figure 8 shows a typical hookup for tracking. Four microphones are connected to channels 1–4 for vocals. Two of them are condenser mics which require phantom power, so the +48V PH switch is pushed in on those channels. A vocal enhancer is connected to the channel 1 INSERT jack to add a special effect to the lead vocal.

Note: Normally, you probably wouldn't use in-line effects on individual channels during tracking. (We're talking *effects* here, which is not the same as dynamics, such as compression and limiting, which would be okay to use during tracking.) It's usually best to get the instrument or voice down on tape unaltered during tracking, then add effects during mixdown. But we thought you should know how to do it anyway, just in case you have an application that requires it.

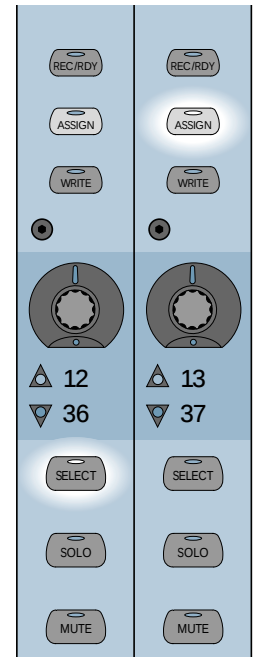
Various instruments are connected to the line inputs of channels 11–14, either directly from their line-level outputs or through effects boxes or direct boxes.

Each input from channels 1–24 is assigned to a tape output, which can be connected to an 8-, 16-, or 24-track recorder. You can assign any input (1–48), any return (FX 1–16, RET 1-8), and Bus 1–8 to any unused tape out using the ROUTE TO TAPE button in the Bus Assignment Section.

- Press ROUTE TO TAPE in the Bus Assignment Section.



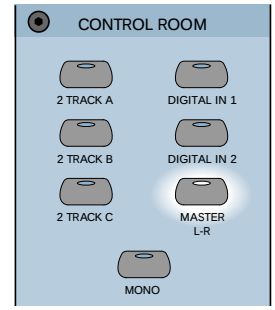
- Press the SELECT button on the channel you want to assign to a Tape Out.
- Press the ASSIGN button for the Tape Out (1-24) you want to assign the selected channel to. (In the following graphic, channel 12 is assigned to Tape Out 13.)



Monitoring

Connect the outputs from the recorders to the TAPE Inputs on the Digital 8•Bus. This allows you to monitor the signal as it's being recorded (assuming your recorder has that capability). To do this:

- Assign channels 25–48 (or whatever channels are being used for tape returns) to the L-R bus.
- In the Control Room Section, assign MASTER L-R as the Control Room Source.



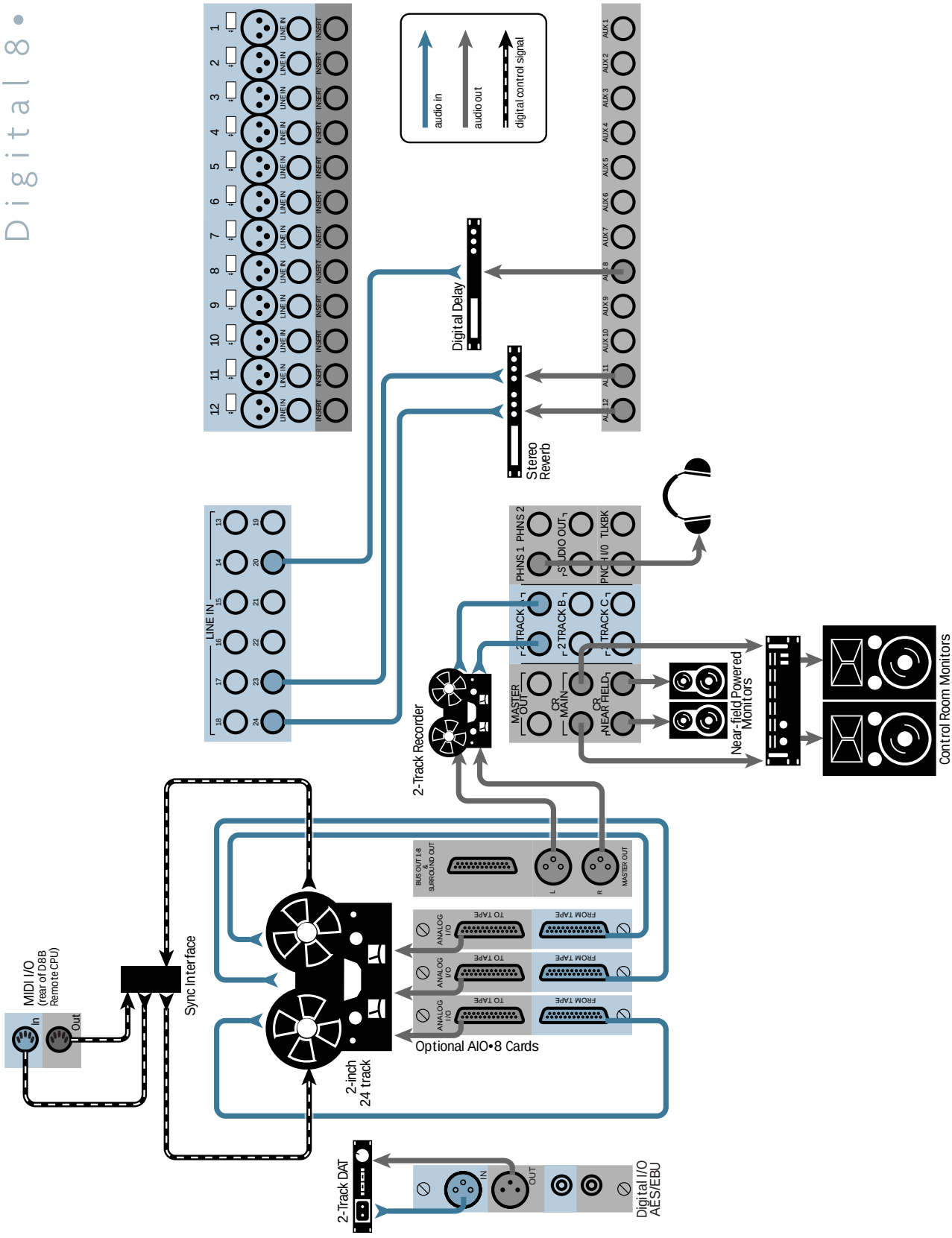


Figure 9. Mixdown Hookup

The configuration shown in Figure 8 has two external effects devices connected for monitoring. Aux 8 send goes to a digital reverb, which has stereo outputs that feed into the line inputs of channels 19 and 20. Aux 11–12 goes out to a multi-effects stereo processor, which then comes back to the Digital 8•Bus through the line inputs of channels 23 and 24.

In addition, Aux 1 and 2 are routed to the internal FX Card which processes the signal with whatever plug-in has been downloaded to it. The processed signal is returned to the L-R bus via the FX 1–4 channel strips in Fader Bank 3.

- Connect the CR MAIN (or CR NEAR FIELD) output to the inputs of a power amp which powers the control room monitors.
- Connect the STUDIO OUTputs to the inputs of a power amp which powers the studio monitors.

Note: If you're using powered monitors, connect the CR outputs and Studio outputs directly to the inputs of the monitor.

- The signal at the CR MAIN, CR NEAR FIELD, and the STUDIO OUT is determined by the Control Room Source selection in the Control Room Section.
- You can connect a pair of headphones to the PHONES 1 or 2 jack and monitor the signal there as well. Select CONTROL ROOM as the source in the PHONES/CUE MIX 1 or 2 Section.

Hookup for Mixdown

The beauty of the split-console approach is that you don't have to repatch your cables when you finish tracking. You're always ready to delve right into mixing down the tracks you've recorded. Refer to Figure 9 for a sample hookup for mixdown.

- The outputs from your multitrack recorders should already be connected to the TAPE IN jacks on the Digital 8•Bus's Tape I/O cards.
- Connect the Left and Right MASTER OUT XLR jacks to your 2-track recorder.
- Assign all the TAPE channels (25–48) to the L-R bus.

The hookup diagram in Figure 9 shows how to connect a couple of different external effects boxes.

- AUX 8 is connected to the input of a digital delay, whose output is connected to channel 20 Line In.
- AUX 11 and 12 feed the input to a stereo reverb, whose stereo outputs are connected to the line inputs of channels 23 and 24.
- Any tracks that you want to send through the digital delay should be sent to AUX 8. Select AUX 8 in the V-Pot Select Section and adjust the V-Pot on the channel to set the send level to the delay.
- The AUX sends are post-fader by default. If you desire, you can change any of the aux sends to pre-fader by pressing the GENERAL button in the Setup Section and selecting Pre-Post in the Fat Channel Display (press the NEXT button to scroll to page 2 of the General Setup menu).
- Use channel 20 to control the amount of digital delay signal in your final mix.
- Any tracks that you want to go through the stereo reverb should be sent to Aux 11–12.
- Use channels 23 and 24 to control the amount of reverb in your final mix.
- Leave the Control Room Monitors connected as you did for the Tracking hookup. Likewise, you can monitor the mix using headphones connected to the PHONES 1 or 2 jack.
- The hookup diagram also shows an optional connection for a digital 2-track recorder using the AES/EBU Digital I/O connection, which provides a digital output of your stereo mix. Connect the output from the digital 2-track to the AES/EBU input on the console, and you can monitor the signal from the digital 2-track in the Control Room output by selecting DIGITAL IN 1 in the Control Room Section.

6. Hookup for Live Mixing

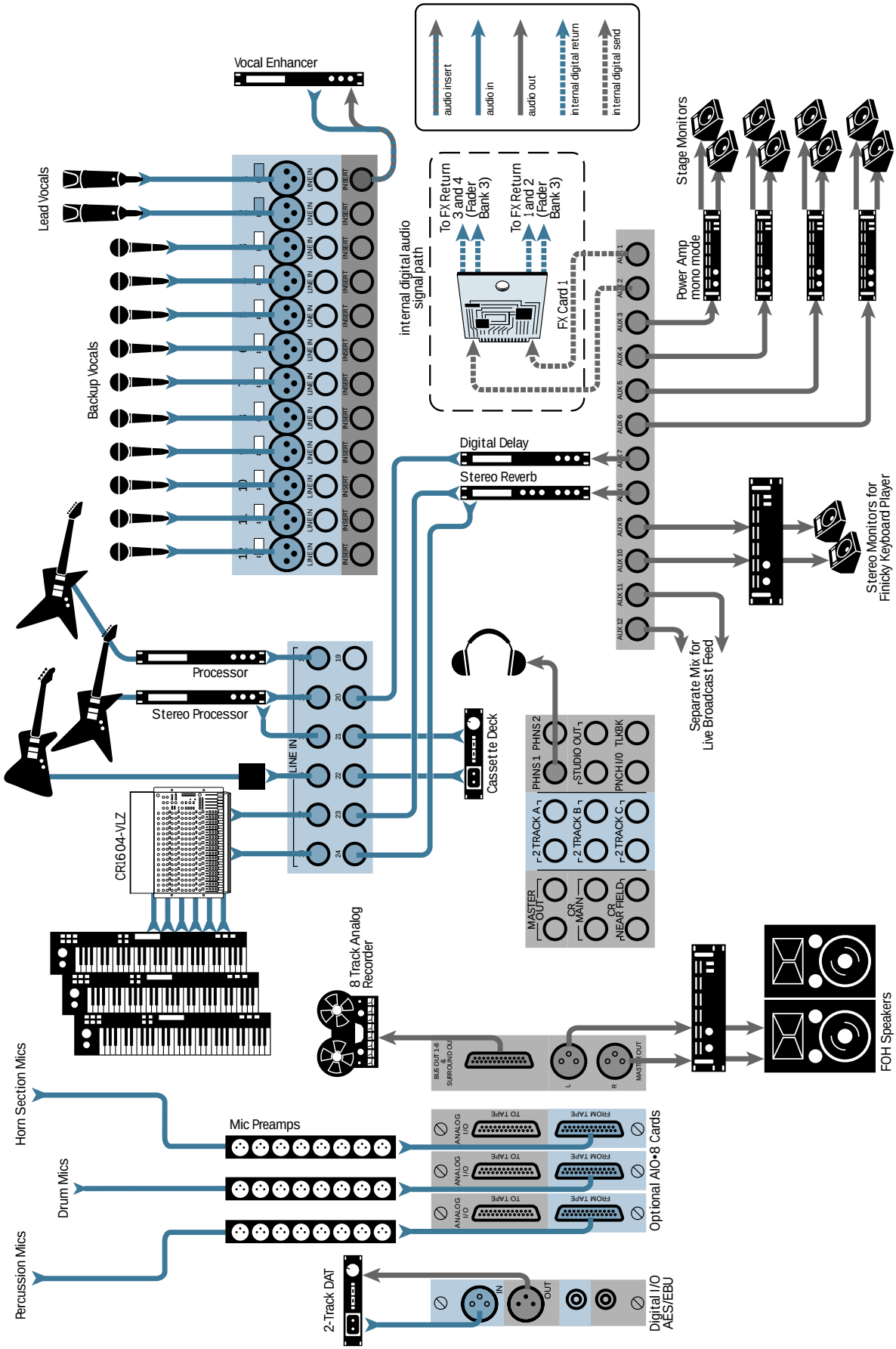


Figure 10. Live Sound Hookup

We made the Digital 8•Bus as easy to use as an analog console. Figure 10 shows how to use the Digital 8•Bus in a live mix situation.

- A number of microphones are connected to channels 1–12 for vocals. Two of them are condenser mics which require phantom power, so the +48V PH switch is pushed in on those channels.
- A vocal enhancer is connected to the channel 1 INSERT jack to add a special effect to the lead vocal.
- Various instruments are connected to the line inputs of channels 13–18, either directly from their line-level outputs or through effects boxes, direct boxes, or a separate sub-mixer.
- Additional mics for percussion, drums, and horns are connected to external mic preamps, which are connected to channels 25–48 analog tape inputs via the 25-pin D-Sub connectors on the Analog Tape I/O cards (AIO•8).

This configuration has two external effects devices connected. Aux 7 send goes to a digital delay, whose output feeds into the line input of channel 20. Aux 8 send goes to a digital reverb, which has stereo outputs that feed into the line inputs of channels 23 and 24. Aux 11–12 is used to provide a separate, independent stereo mix to a live broadcast feed.

Setting Up Monitor Mixes

Aux 3 through 6 provide stage monitor feeds. The line level outputs go either directly to the input jacks on a power amplifier or powered stage monitor, or the inputs of an equalizer or other processor that feeds the amplifier.

Note: The aux sends are post-fader by default. If you desire, you can change any of the aux sends to pre-fader by pressing the GENERAL button in the Setup Section and selecting Pre-Post in the Fat Channel Display (press the NEXT button to scroll to page 2 of the General Setup menu).

Connect the Left and Right MASTER OUT XLR jacks to your FOH (Front-Of-House) power amplifier and speakers. In addition, you might connect the BUS 1–8 output to an 8-track recorder so you have the show on tape in case something astounding happens. You might also connect the S/PDIF or AES/EBU output to a DAT recorder to capture a digital recording of the FOH mix.

Figure 10 also shows a 2-track cassette deck output feeding channels 21 and 22 for playing music between sets.

7. Digital 8•Bus Overview

Channel Strip Description

Refer to the foldout page at the end of this manual for an overall view of the various sections described.

Ⓐ Channel Strip Section

There are 24 channel strips on the Digital 8•Bus. Channels 1–12 have both mic and line input capability, and channels 13–24 have line-level inputs only.

There are four tiers, or levels, to the input strips. We refer to them as Fader Banks 1–4. Fader Bank 1 includes the mic and line inputs as described above. Fader Bank 2 includes 24 channels of tape inputs, which are accessed through plug-in cards on the rear panel. You can use any combination of Analog I/O cards (AIO•8) or Digital I/O cards (DIO•8). Fader Bank 3 controls the 16 internal effects returns (FX 1–16), and the 8 ALT I/O returns (RET 1-8). You must have the optional ALT I/O card installed to use these returns (AIO•8 or DIO•8). Fader Bank 4 controls the 8 Virtual Groups, 8 MIDI controllers, and the 8 Bus Masters (BUS 1–8).

The channel strip on the Digital 8•Bus is very much like the channel strip on an analog mixer. It has the TRIM LEVEL control at the top for adjusting the gain of the mic or line input signal (channels 1–24 only), followed by a MIC/LINE button (channels 1–12 only) for switching between the mic and line input signals. The REC/RDY button arms the corresponding track for recording via MIDI Machine Control (MMC), and the ASSIGN button is used to assign channels to buses and the tape outputs.

The WRITE button enables a channel for recording to automation. In Touch mode, it is unnecessary to press the WRITE button, because the channel automatically goes into Write mode as soon as a control is moved on the channel.

The channel V-Pot controls the pan and aux send levels for the channel, depending on how it is assigned in the V-Pot Assign Section and Master V-Pot Section. Just below the V-Pot are the Fader Bank Select LEDs, which indicate the Fader Bank selected. If both of the LEDs are lit, Bank 3 is selected (EFFECTS). If neither of the LEDs are lit, Bank 4 is selected (MASTERS).

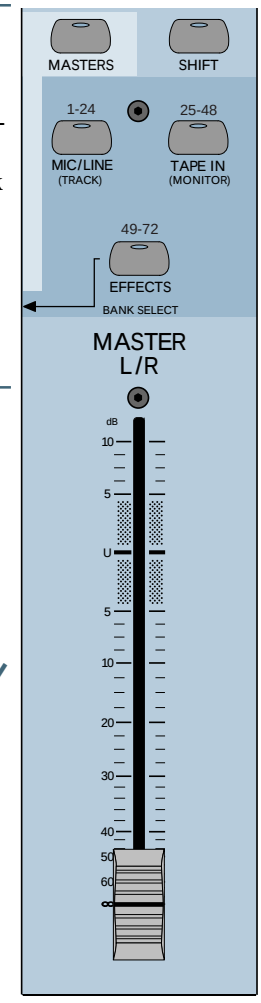
The SELECT button chooses a channel for editing in the Fat Channel, as well as copying and pasting channel settings. When the SOLO button is pressed, Mackie's exclusive RUDE SOLO LIGHT in the Studio/Solo Section begins flashing to let you know at least one channel is soloed. All soloed channels are assigned to the stereo solo bus, and appear at the CR (Control Room) outputs.

The MUTE button mutes the signal after the channel fader, prior to the output buses, including BUS 1–8 and the L-R bus. It doesn't affect the Direct Out to Tape.

The Channel fader controls the signal level from the channel to the bus or buses it is assigned to. It doesn't affect the signal level from the channel to the Tape Outputs. The Tape Out signal is pre-fader. You can adjust the Tape Out levels, however, without changing the input Trim Level control. Press the LEVEL TO TAPE button just below the Talkback Mic and the channel V-Pots become Tape Send level controls.

The channel meters indicate post-EQ, pre-fader levels. The audio level display is scaled in digital dB FS, where 0 dB FS is +19 dBu, –15 dB FS is +4 dBu and minimum displayed level is –50 dB FS. Markings screened next to the LED ladders are denoted as –50 dB FS to OL. Markings are similar in function to those of digital recorders.

Note: Typically, in digital recording devices such as MDMs, HDRs, or DATs, there is a built-in overhead of 3 to 4 dB above the 0 dB FS mark to match the typical maximum unbalanced analog console bus output value of +22 dBu. The OL LED lights at +22 dBu.



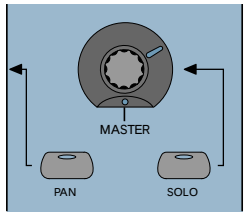
Master Section Description

The Master Section is divided into 12 subsections.

Ⓑ Master Fader/ Bank Select Section

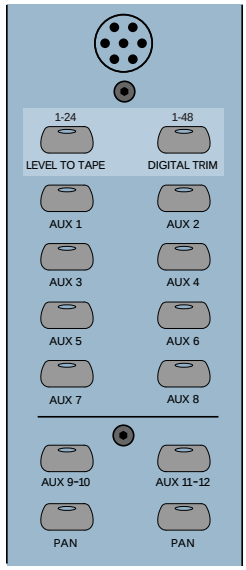
This section consists of the four buttons used to select the four Fader Banks, the SHIFT button, which is used to select and deselect multiple channels, and the Master L/R Fader which controls the signal level going to the L-R stereo bus.

C Master V-Pot Section



The Master V-Pot acts as a master level control for the currently selected Aux bus. If the PAN button is selected, the Master V-Pot becomes inactive and all the channel strip V-Pots become Pan controls. When the Master SOLO button is selected, the currently selected aux bus is soloed (it's possible to solo more than one aux bus).

D V-Pot Assign Section



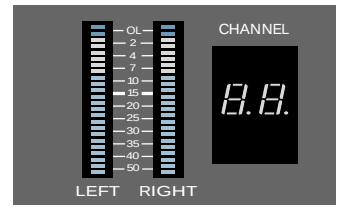
This is where you assign the V-Pots on each channel to control individual aux send levels. (See "Using Internal Channel Processing and Internal Effects" on page 16 for information on Aux Sends to internal effects.)

Aux 9–10 and Aux 11–12 are stereo aux sends, and have individual LEVEL and PAN buttons that assign the channel V-Pots to control the send level and stereo balance respectively.

Included in this section are the LEVEL TO TAPE and DIGITAL TRIM buttons. LEVEL TO TAPE allows you to use the channel V-Pots to adjust the Tape Out levels. Since the Tape Outputs are pre-fader, this allows you to optimize the tape send for your tape recorder.

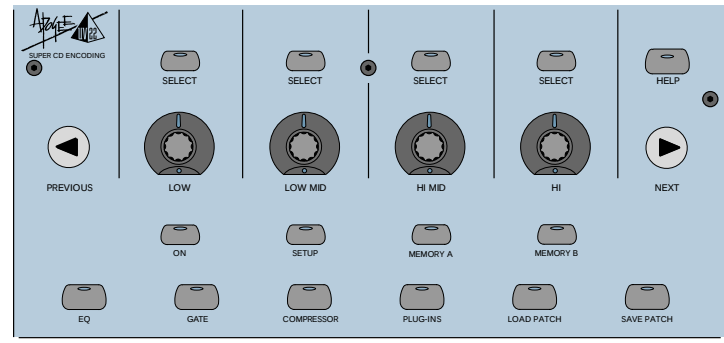
DIGITAL TRIM assigns channel V-Pots to control digital preamp trim for channels 1–48, adjusting incoming signals just after the A/D converters, and before DSP, Fader, and Mute.

Just above the V-Pot Assign Section is the Talkback Mic. Sounds arriving at this in-panel microphone are routed to the Cue Mixes. You can also route the talkback signal to the Studio Outputs by pressing the TALKBACK TO STUDIO button in the Solo/Studio Section. Above the Talkback Mic are the L-R meters which indicate the signal level at the Main Left and Right Outputs (when L-R is selected in the Control Room Section), post-Main Fader. If a SOLO button is engaged, the L-R Meters indicate the Solo level.



Right next to the L-R meters is the CHANNEL SELECT Display. This indicates the last channel selected by any channel select button. The channel that is indicated in the CHANNEL SELECT display is also the currently active channel selected for editing in the Fat Channel (channels 1–72).

E Fat Channel Section



This is where you adjust parameters for the EQ, compressor, and gate on each channel. You also select and adjust the settings for the internal effects here, as well as selecting system options and general interaction with the Mackie Real Time OS (operating system), using the SELECT buttons and V-Pots.

The HELP button is found here, too. Press the HELP button, then press any other button to find out more information about how the button works (this may not be operational in version 1 of the software).

Use the LOAD PATCH and SAVE PATCH buttons to open EQ, compressor, gate, and effects settings you had previously stored, and to save settings you've been working on.

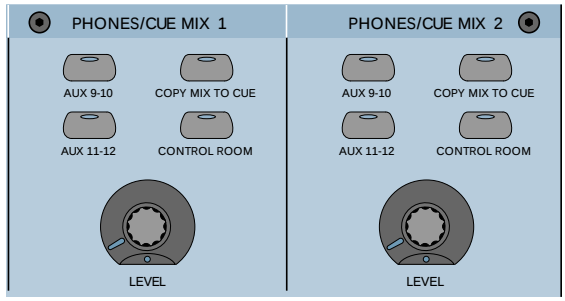
F Studio/Solo Section

This section contains a V-Pot to control several different functions. When SOLO LEVEL is selected, the V-Pot controls the solo bus signal level. When STUDIO LEVEL is selected, it controls the signal level at the STUDIO OUT jacks. When the TALKBACK LEVEL button is selected, it controls the level of the Talkback Mic. Use the PFL SOLO button and AFL SOLO to choose between pre-fader and post-fader soloing.

The TALKBACK TO STUDIO button directs the Talkback Mic signal to the STUDIO OUTputs. The CLEAR SOLO button provides a quick way to turn off all the SOLO buttons on the console.

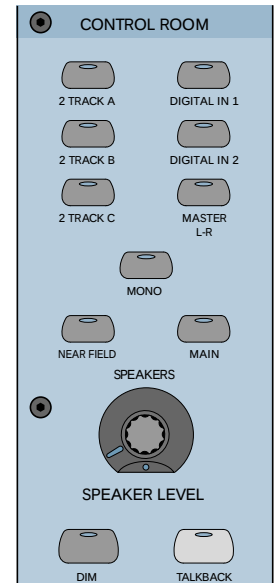
Normally, when a channel is soloed, it affects only the Control Room Outputs, and not the Main outputs. Pressing the MIXDOWN SOLO button allows you to solo channels in the L-R Main Outputs.

G Phones/Cue Mix 1 and 2 Section



This is where you select the source for the Phones outputs and set the Phones levels. Press CONTROL ROOM to send the signal at the Control Room outputs to the Cue Mix, press AUX 9–10 to send the signal at the Aux 9–10 output to the Cue Mix, and press AUX 11–12 to send the signal at the Aux 11–12 output to the Cue Mix. The COPY MIX TO CUE button copies all the fader levels on channels 1–48 to each channel's V-Pot, for the Aux Send selected in the Phones/Cue Mix Section. Use the V-Pot in the Phones/Cue Mix Section to adjust the level at the PHONES output.

H Control Room Section

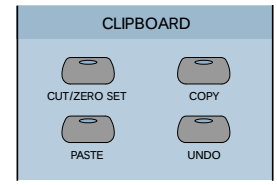


This is where you select the signal source and adjust the output level for the control room outputs. Press 2 TRACK A, B, or C to select one of three 2-track sources. Press DIGITAL IN 1 to select the AES/EBU Input, and DIGITAL IN 2 to select the S/PDIF Input as the control room source, and press L-R to select the L-R bus.

The NEAR FIELD and MAIN buttons are used to select either the CR NEAR FIELD output or the CR MAIN output. When MONO is selected, the stereo Control Room signal is summed into a monaural output, a useful feature for checking for phase cancellations between the left and right channels.

Use the SPEAKER LEVEL V-Pot to adjust the output level of the selected CR output. The DIM button quickly attenuates the Control Room output by 20 dB (in case the phone rings). The TALKBACK button routes signals arriving at the in-panel TALKBACK MIC to Cue Mixes 1 and 2, and to the Studio Outputs when the TALKBACK TO STUDIO button is pressed in the Solo/Studio Section.

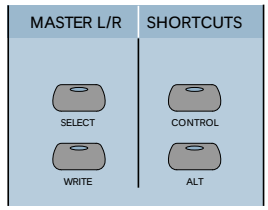
I Clipboard Section



Use this section to cut, copy, and paste specific fader operations, channel parameters, and automation events. Use UNDO to reverse a cut,

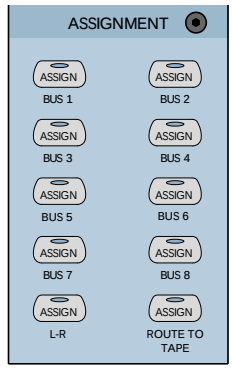
copy, or paste operation. There is only one level of Undo. Pressing UNDO a second time restores the original cut, copy, or paste operation (you can undo an undo!).

J Master Fader/Shortcuts Section



These buttons are used to select the Master Fader and to put it into write mode for automation. The Shortcuts buttons act as modifier keys, used in combination with other buttons to perform certain operations quickly. The CONTROL and ALT buttons are equivalent to the Ctrl and Alt keys on a computer keyboard.

K Bus Assignment Section

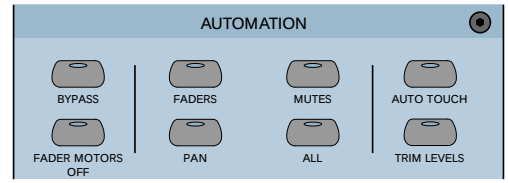


Use this section to assign channels to any of ten different buses (Bus 1–8 and L-R Main), and also to the direct TAPE OUTs. When a Bus 1–8 button is selected, press a channel's ASSIGN button to route the channel's post-fader signal to the selected bus. Since the ASSIGN button lights, you can quickly see what channels have been assigned to the bus.

When the MASTER L-R button is selected, press the channel ASSIGN buttons to route the channels' post-fader signal to the L-R bus. The Effects Returns and the Bus 1–8 Surround Masters can also be assigned to the L-R bus. Since the ASSIGN button lights, you can quickly see what channels have been assigned to the L-R bus.

The ROUTE TO TAPE button activates the Digital 8•Bus' built-in patch bay. Use it to assign a selected channel to one of the 24 Tape Outputs. The Effects Returns and the Bus 1–8 Surround Masters can also be assigned to the Tape Outputs. When ROUTE TO TAPE is selected, press the SELECT button on the channel you want to assign, then press the ASSIGN button for the tape out you want to assign the selected channel to.

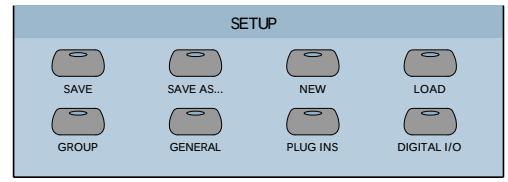
L Automation Section



Use this section to create automated mixes. The BYPASS button turns automation playback on and off.

The FADER MOTORS OFF button disengages the fader motors and prevents any automated fader motion during automation playback. This does not affect fader level changes that have been recorded into automation. The level changes still play back, only the faders don't move.The FADERS, MUTES, PAN, and ALL buttons determine *what* is recorded to automation, and the AUTO TOUCH and TRIM LEVELS buttons determine *how* moves are recorded to automation.

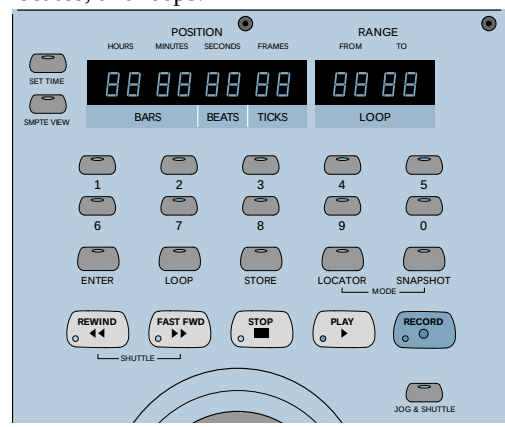
M Session Setup Section



Buttons in this section are used for file maintenance and for setting up system functions such as Virtual Groups, Digital I/O, meter assignment, and MIDI parameters. For more information, see "General Setup" in Chapter 3 of the Digital 8•Bus Owner's Manual.

N Transport Section

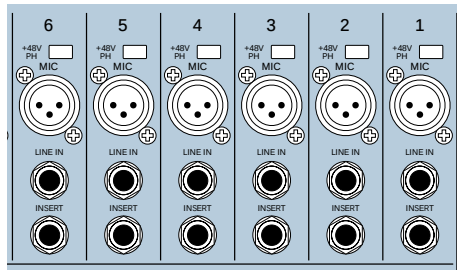
This section provides control for external recorder transports, time display, snapshots, locates, and loops.



Rear Panel Description

This section describes rear panel connector types, their functions, and associated signal buses.

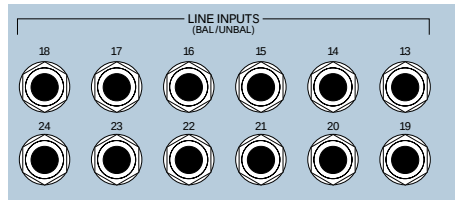
O Channels 1–12 Inputs



Channels 1 through 12 have the following connections:

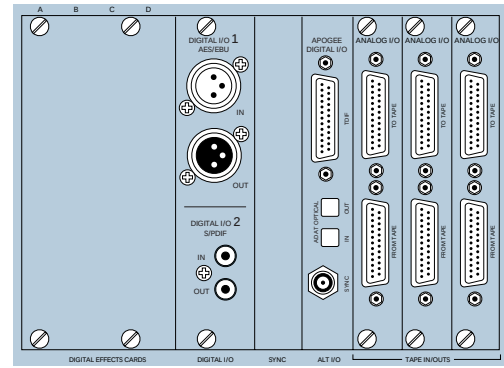
- 3-pin balanced XLR microphone connector. Each microphone connector has an individual 48 volt phantom power switch, which should be activated when using condenser microphones. When switched on (pushed in), this switch feeds +48VDC to pins 2 and 3 of the XLR microphone connector relative to pin 1 (ground).
- 1/4" TRS (Tip/Ring/Sleeve) line input connector, accepts balanced and unbalanced signals. When connecting a line-level input to the LINE IN connector, make sure the MIC button located just below the TRIM LEVEL control on the top panel is in the OUT position.
- 1/4" TRS insert connector, serves as a combination signal out and signal in. This is a normalling jack, so with nothing plugged into it, the send signal is connected to the return pin inside the jack. Use this jack to connect serial effects such as compressors, equalizers, de-essers, or filters. The channel INSERT points are after the TRIM LEVEL control, but before the A/D converters and digital signal processing.

P Channels 13–24 Inputs



Channels 13 through 24 have 1/4" TRS (Tip/Ring/Sleeve) line input connectors that accept balanced and unbalanced signals.

Q Card Cage Section



This is where you plug in the optional I/O cards of your choosing, to customize the Digital 8•Bus for your own application.

There are three slots assigned as TAPE IN/OUTS. Each slot provides I/O for 8 tracks, so you can have up to 24 tracks running simultaneously.

The TO TAPE outputs are fed from channels 1–48, from whatever channels are assigned to the tape outputs. The FROM TAPE inputs feed into channels 25–48. The connections for the tape inputs and outputs depend on which Tape I/O cards you have installed.

Analog I/O (AIO•8)

These cards have two 25-pin D-Sub connectors, one for connecting eight balanced line-level input signals from a multitrack recorder to the Digital 8•Bus, and the other for connecting eight balanced line-level output signals from the Digital 8•Bus to a multitrack recorder. You can install up to three cards in the card cage on the rear panel, to accomodate up to 24 tracks.

The connectors on these cards are compatible with the analog 25-pin D-Sub connector used on Tascam digital multitrack recorders. Several audio-grade cable manufacturers make high-quality cables for this application. Some also make breakout cables with a 25-pin D-Sub connector on one end and connectors used by other popular MDMs and HDRs on the other end. See Appendix F in the Digital 8•Bus Owner's Manual for the pin-out diagram of the 25-pin D-Sub connectors.

Apogee Digital I/O (DIO•8)

These cards have optical digital input and output connectors (ADAT Multichannel Optical Interface) for connecting eight tracks to an ADAT or ADAT-optical compatible MDM. They also have a 25-pin D-Sub connector for connecting to a Tascam MDM. Along with the 25-pin connector is a Sync BNC connector for providing sample rate clock information (master only) to a Tascam MDM. See Appendix F in the Digital 8•Bus Owner's Manual for the pin-out diagram for the Digital I/0 25-pin D-Sub connector.

The ALT I/O slot accepts either an AIO•8, a DIO•8 card, or a PDI•8 card, and provides eight additional inputs and outputs. The inputs are routed to RETs 1–8 (channels 65–72) in Fader Bank 3 (EFFECTS). The outputs are assignable to either the 8 Bus outputs (BUS 1–8) or the 8 Aux Sends (AUX 1–8). Assignment is made in the Digital I/O menu.

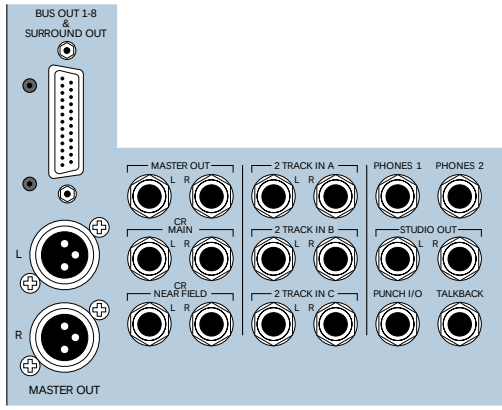
The SYNC slot is provided for an optional card that can be installed to provide word clock or blackburst in, SMPTE in, and ESAM II machine control. (See Appendix F for Digital I/O options.)

The DIGITAL I/O card provides an XLR AES/EBU STEREO MASTER input and output. The input accepts a balanced stereo digital signal that is routed to the Control Room Output when DIGITAL IN 1 is selected in the Control Room Section. The output is a balanced stereo digital signal driven by the main L-R bus, fed post Master Fader, but pre-DAC.

The DIGITAL I/O card also provides an RCA S/PDIF MASTER input and output. The input accepts an unbalanced stereo digital signal that is routed to the Control Room Output when DIGITAL IN 2 is selected in the Control Room Section. The output is an unbalanced stereo digital signal driven by the main L-R bus, fed post-Master Fader, but pre-DAC.

The DIGITAL EFFECTS slots provide room for four FX cards. There are no external connections to these cards, so they are hidden behind a cover plate. Aux sends 1–8 feed the inputs to the FX cards, and the effects returns (FX 1–16) in Fader Bank 3 are used to return the processed signals to the L-R bus.

Master Input/Output Section



The Master Outputs are fed from the Master L-R fader on the console surface. Other output connections, including PHONES, STUDIO OUT, and CR MAIN, and NEAR FIELD are fed from their respective dedicated buses as indicated on the console surface.

The BUS OUT 1–8 (SURROUND OUT) connector provides eight balanced analog line-level outputs on a single 25-pin D-Sub connector. Any channel (1–48), aux send, or ALT IN can be assigned to one or more bus outputs, with the output level controlled by the BUS 1–8 MASTERS (Fader Bank 4). See Chapter 4 in the Digital 8•Bus Owner's Manual for the pinout diagram for the Bus 1–8 25-pin D-Sub connector.

The analog XLR L-R MASTER OUTputs are the main left and right outputs. They provide balanced analog signals, fed post-DSP, fader, and DAC. These outputs are driven by the main L-R bus.

The analog TRS L/R MASTER OUTputs carry the same signal as the XLR MASTER OUTputs, and are driven by the L-R bus. They are balanced analog 1/4" output connectors fed post-DSP, fader and DAC. These outputs can drive a balanced or an unbalanced input.

The CR MAIN L-R Outputs and the CR NEAR FIELD L-R Outputs are pairs of 1/4" TRS stereo line-level outputs for sending signals to control room speakers. They are balanced analog signals fed post-DSP, fader and DAC. The signals at these outputs are the same, but with independent level control, and are determined by the Control Room Source selection. These outputs can drive a balanced or an unbalanced input.

The PHONES 1 and 2 Outputs are unbalanced 1/4" TRS jacks for connecting stereo headphones. These outputs are designed to drive virtually all stereo headphones. The signal at these outputs is determined by the PHONES/CUE MIX 1 and 2 source selection. Adjust the Cue Mix LEVEL control to compensate for headphones with exceptionally high or low impedances.

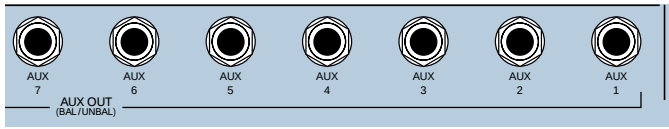
The STUDIO L-R OUTputs are two 1/4" TRS stereo line-level outputs for sending signals to the studio. They are balanced analog stereo-paired outputs fed post-DSP, fader and DAC. The signal at these outputs is determined by the Control Room Source selection. These outputs can drive a balanced or an unbalanced input.

The PUNCH I/O jack is a remote switch connection for activating the master record function. Use a normally-open switch.

The TALKBACK jack is a remote switch connection for engaging the talkback function. It duplicates the Talkback switch in the Control Room Section. Use a normally-open switch.

The 2 TRACK A, B, and C L-R Inputs are balanced 1/4" TRS jacks for connecting line-level input signals from a 2-track recorder. The separate left/right pairs feed the 2 TRACK A, B, and C buses in the control room monitoring section. These inputs can accept balanced and unbalanced signals.

S AUX OUT Section



The AUX OUTputs are eight mono and two stereo-paired TRS, line-level, balanced auxiliary outputs. AUX OUTputs 1 and 2 are analog outputs paralleled with the internal effects send buses 1 and 2 correspondingly. AUX OUTputs 3 through 8 are independent analog mono outputs, fed from the corresponding internal aux buses. If additional FX Cards are installed, AUX 3 through 8 are paralleled with their corresponding internal effects send buses 3 through 8. AUX OUTputs 9 through 12 are analog stereo pair outputs. Auxes 9 and 10 constitute a single left/right pair and auxes 11 and 12 constitute a single left/right pair. These outputs can drive a balanced or an unbalanced input.

When Aux 9–10 is selected as a Cue Mix source, aux outputs 9 and 10 are paralleled with the Cue Mix source from the internal aux buses 9 and 10. The same principle applies when Aux 11–12 is selected as a Cue Mix source.

Remote CPU Description

T Data and Synchronization I/O

These connections are specifically pertinent to non-audio functions (or, in plain English, these aren't audio connections!).

Connecting a Mouse, Keyboard and SVGA Monitor

The Digital 8•Bus is designed to work as a stand-alone console. However, you can increase your options, and your productivity, by using a mouse, keyboard, and SVGA monitor. Simply connect them to the corresponding ports on the back of the Remote CPU to have access to key commands on the keyboard, point-and-click commands with the mouse, and alphanumeric entry on the keyboard for file naming.

The MOUSE port lets you connect a PC-compatible mouse (PS/2 style). The keyboard port is a 5-pin DIN connector for any PC-compatible keyboard (QWERTY style). And a hi-density D-Sub connector is provided to connect an SVGA monitor (1024 x 768 resolution) for graphic display and control of most console functions, including equalization, compression, gating, internal effects, automation editing, and file management. We recommend using a multisync 17" monitor or larger (21" preferred) for maximum viewing pleasure.

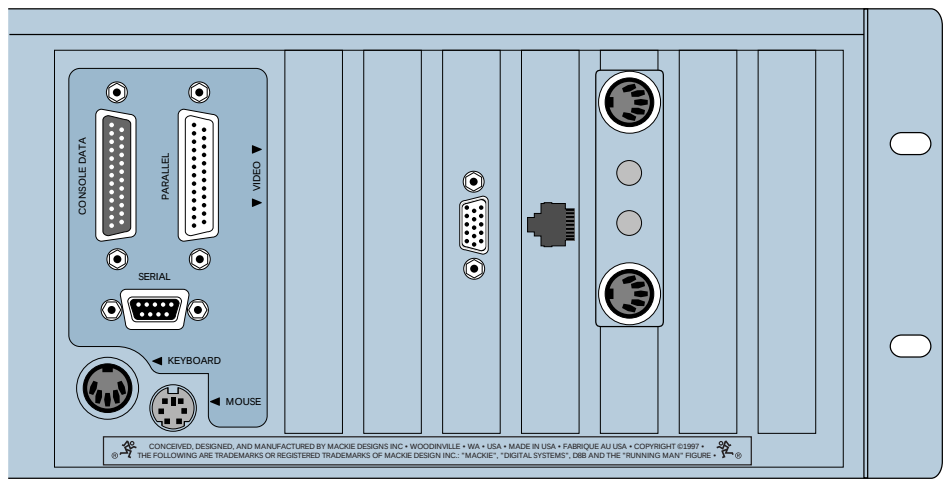
Turn the Digital 8•Bus OFF before connecting these devices. The Digital 8•Bus must boot up with these peripheral devices connected in order for them to work properly.

Note: See Appendix I in the Digital 8•Bus Owner's Manual for keyboard/mouse/console equivalencies and functions.

Other Connections

CONSOLE DATA is a 25-pin D-Sub connector that connects to the console using the supplied 25-pin D-Sub data cable.

The MIDI Card installed in the Remote CPU has a 9-pin D-Sub connector. A 9-pin to Dual 5-pin DIN adapter is supplied with the Remote CPU so you can use standard MIDI cables to make your MIDI connections.


CONSOLE DATA
PARALLEL
VIDEO
SERIAL
KEYBOARD
MOUSE
CONCEIVED, DESIGNED, AND MANUFACTURED BY MACKIE DESIGNS INC • WOODINVILLE • WA • USA • MADE IN USA • FABRIQUE AU USA • COPYRIGHT ©1997 •
THE FOLLOWING ARE TRADEMARKS OR REGISTERED TRADEMARKS OF MACKIE DESIGN INC.: "MACKIE", "DIGITAL SYSTEMS", D8B AND THE "RUNNING MAN" FIGURE •

The MIDI IN connection is used to bring in MIDI Time Code (MTC) from a Modular Digital Multitrack (MDM) recorder or other external device. It is also used to receive Program Changes and Sysex dumps from outboard gear.

The MIDI OUT connection is used to send out MIDI Machine Control (MMC) commands to an MMC-compatible recorder. It is also used to transmit Program Changes and Sysex dumps to outboard gear.

The SERIAL port is a 9-pin D-Sub connector provided for external control of optional surround-sound functions and data I/O from the internal CPU.

The PARALLEL port is a 25-pin D-Sub connector provided for connecting an external backup drive or printer.

The Ethernet port accepts an RJ45 telco connector. It is used to connect to Mackie Central, which provides software upgrades of the Mackie Real Time OS and plug-ins. It can also be used to make peer-to-peer connections with other Digital 8•Bus consoles. See Appendix H in the Digital 8•Bus Owner's Manual for more information on upgrading.

Flip the POWER Switch on the front of the Remote CPU to the UP position to turn on the Digital 8•Bus. The Fat Channel Display lights up and the console starts the Mackie Real Time OS operating system, goes through its self-test routine, initializes the DSPs, and lets you know when it's ready to start mixing.

The IEC connector is where you connect the supplied detachable linecord. Make sure the linecord is pushed all the way in to the IEC connector. A second connector is provided for connecting an optional color monitor to the AC power. This second AC connector is not controlled by the power switch. In other words, as long as the Digital 8•Bus' linecord is plugged in to an AC outlet, the second AC connector is live, regardless of whether the power switch is on or off.

Automation

One of the most powerful features of the Digital 8•Bus is its automation. In fact, it has a built-in 166MHz Pentium®-compatible computer whose only purpose is to run the powerful Mackie Real Time OS Automation System. No need to connect a separate sequencer for automation and tie up the MIDI ports.

For the purposes of this Quick Start Guide, it is not our intent to go into any depth in describing how the automation works, but to simply introduce the idea and let you know that it's there. Refer to the Automation section in the Digital 8•Bus Owner's Manual for an in-depth look at automation.

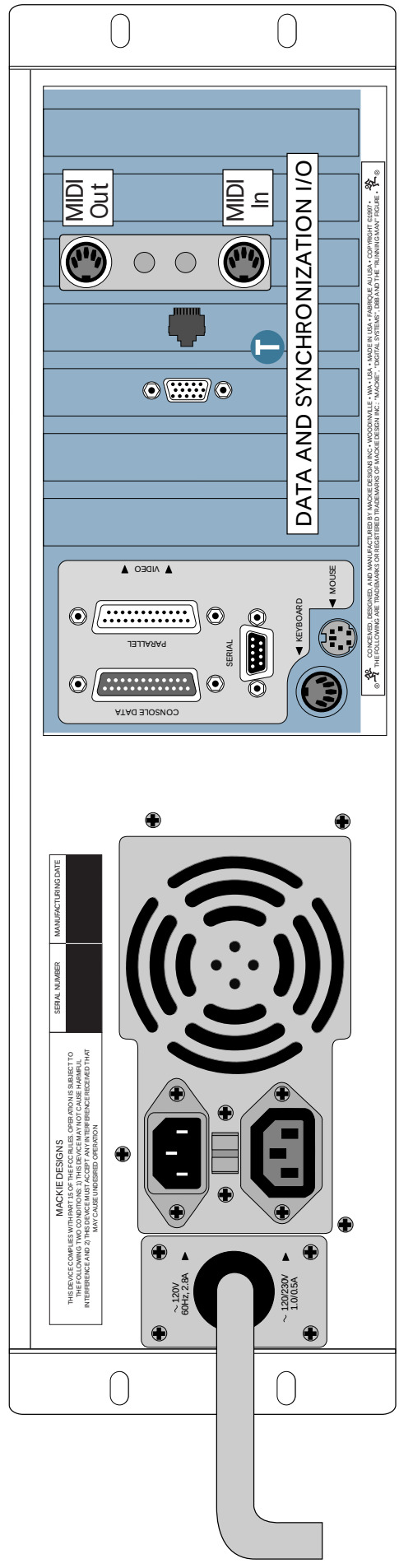
Suffice it to say that virtually all control changes on the Digital 8•Bus can be stored and played back, referenced to time code. The primary use for automation is in the mixdown stage of the recording process, when multiple controls need to be varied in real time. You can use automation to move many faders at once, create custom fadeouts, and change EQ, compression, gate, and effects parameters. You can mute tracks until just before a musical passage begins, then mute it again just after the passage is over to reduce noise build-up in the final mix.

Touch Mode

For the beginner, the easiest way to get started learning about automation is to use touch mode. When touch mode is active and ALL is on, as soon as you touch a control and move it, or press a button, the change is automatically written into automation. Once touched, the parameter continues to be written into automation, overwriting anything that was previously there, until either it is taken out of automation by turning off its WRITE button, or STOP is pressed in the Transport Section.

Let's run through a quick automation scenario. We assume that all connections are properly made between the tape recorder(s) and the Digital 8•Bus at this point.

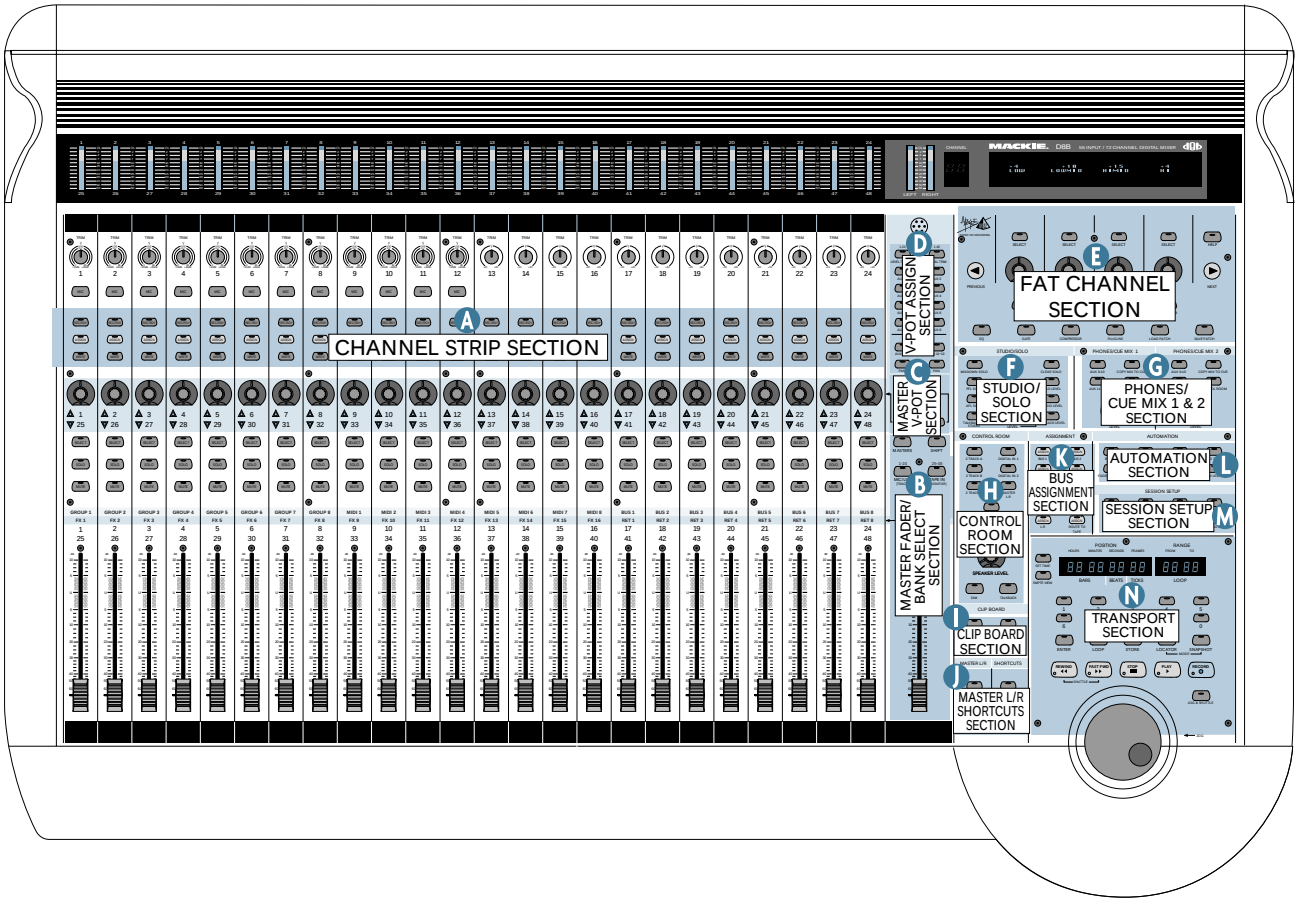
1. You might want to run through the program once and get a rough mix to start with before you begin automating the mix.
2. Rewind the tape back to the beginning of the program by pressing the REWIND button.
3. Press the BYPASS button in the Automation Section to enable automation. Then press ALL and AUTO TOUCH.
4. Press PLAY in the Transport Section. Time code begins to run in the POSITION display, synchronized to the time code display in the tape recorder(s).
5. Move some faders. You'll notice that as soon as you move a fader on a channel the WRITE button lights up to indicate that the channel's fader moves are being written to automation.
6. When you're done press STOP, then press REWIND in the Transport Section. Play the tape back. All the fader moves that you made play back, too.

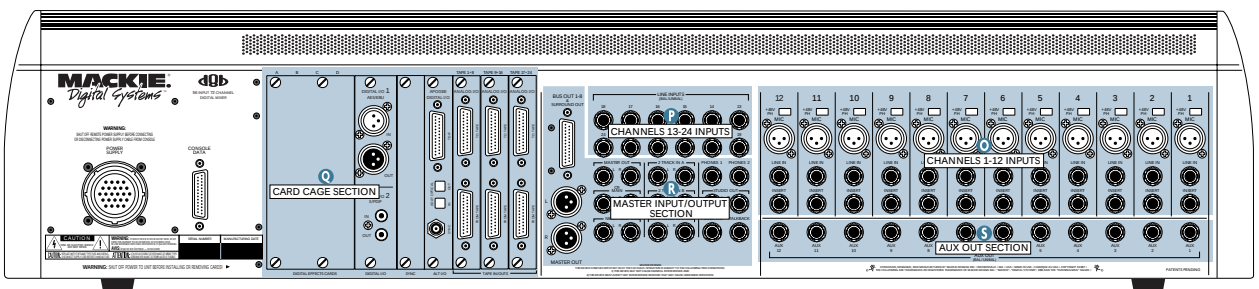


MIDI

Ethernet

Video


A
CHANNEL STRIP SECTION
B
MASTER FADER/ BANK SELECT SECTION
C
MASTER V-POT ASSIGN SECTION
D
V-POT ASSIGN SECTION
E
FAT CHANNEL SECTION
F
STUDIO/ SOLO SECTION
G
PHONES/ CUE MIX 1 & 2 SECTION
H
CONTROL ROOM SECTION
I
CLIP BOARD SECTION
J
MASTER L/R SHORTCUTS SECTION
K
BUS ASSIGNMENT SECTION
L
AUTOMATION SECTION
M
SESSION SETUP SECTION
N
TRANSPORT SECTION


CHANNELS 13-24 INPUTS
CHANNELS 1-12 INPUTS
CARD CAGE SECTION
MASTER INPUT/OUTPUT SECTION
AUX OUT SECTION